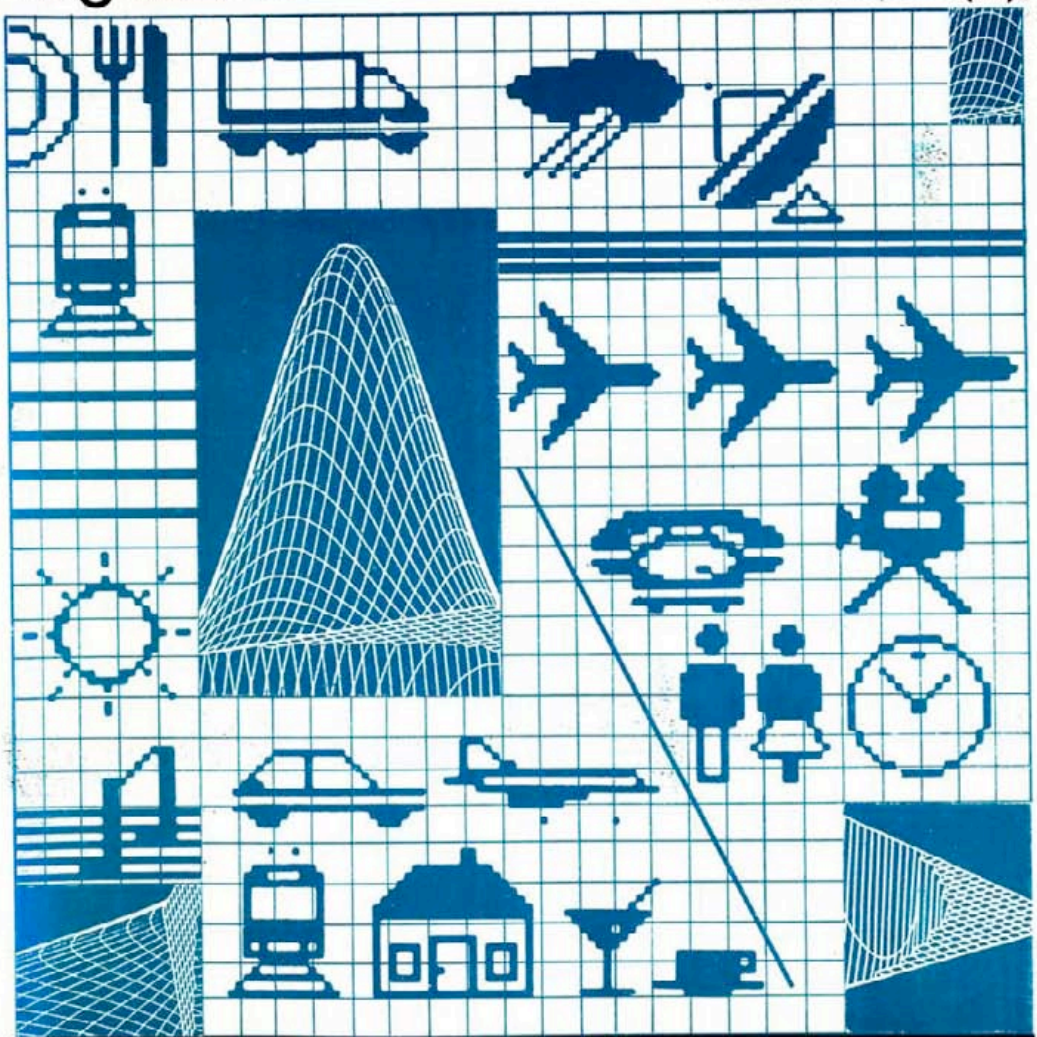
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August 1985 Volume 5 (4)



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EDITORIAL

Those of you who read this column will remember that my last piece contained a remark regarding the quality of the printing, stating that I expected a definite improvement. Well to give the printer credit, he did improve it. But it wasn't good enough, so this issue will have passed through the hands of another. The new printer is Bill Marks, a BASUG member who runs his business in Shoreditch. Having seen some of his work, I predict that we really shall see an improvement in this issue.

You should receive a copy of the accounts of BASUG Ltd. with your Hardcore this time and the Minutes of the AGM form a substantial section of the magazine. Last time, while bemoaning the departure of the Chairman, I mentioned that he had managed to get the finances back on track. On track they may be, but you will see that they still have a long way to go in order to reach the high ground which represents a secure financial situation. Members can help, by buying items from BASUG, but efficient, effective and business-like management of the club is also absolutely vital for its survival. At the present time the membership numbers a little over 1000 and there can be little doubt that the whole set up would be more viable with a greater number of people. Perhaps you can help by introducing a friend or colleague ?

It will be the latter part of the summer when you get this, a rather low time for editors in general, so can I once more urge you to write for and to me. Without enthusiastic contributons, this particular literary venture would not exist. I do cajole colleagues and friends, many of whom are not BASUG members, but we cannot survive for ever on the goodwill of others. I am very grateful to those regulars who do write, but it is unfair always to depend on them, and I need more of you to make the effort and send in new ideas and articles. Remember, I'm on the wire, (Dialcom) 84:BSG050 - you can even get that one from Australia, Hong Kong or the 'States! Incidentally, there are now over 100 members on the Force. One wonders whether they consider it to be good value for money and whether they use the system for anything other than a chat ? - Let me know.

CHAIRMAN'S CORNER

By Jim Panks.

I must first of all thank last years committee for the sterling service provided. It is with regret that 'Q'.Reidford has been forced to resign the Chairmans post due to increased commitments at work. We all wish him well. We have also lost our Course Co-ordinator Richard Beck and Roger Harris who ran the Literature Library. Both Richard and Roger worked in the spirit of helping in whatever fields they could. It is our loss. I must welcome the new Committee, many of them are old hands but we have three new faces to help keep us on the right track. Irene Flaxman takes over my old position of Treasurer and brings some expertise to this important post. Irene is a Cost Accountant and already has contributed to the thorny financial side of the group. Bill Watson and Tom Wright come to the committee from Birmingham. Both are very keen to help the club, and will provide valuable new blood.

The Annual General Meeting on the 6th July 1985 went well, as is usual on this annual occasion we had a fairly lively meeting with most of the members present contributing. I would like to thank all those members that turned up and enjoyed the meeting and workshop. My thanks also go to the speakers who tried under difficult conditions to get their voices heard. The venue at County Hall is ideal for structured meetings and courses and it is well placed. Many members took the opportunity to discuss with members of the committee how BASUG could improve and some offered to help in various fields. I would like to thank them all and assure them that all the ideas will be evaluated.

One of the major topics at the A.G.M. was the financial situation of the club and how best to put it in order 'once and for all'. Many suggestions were discussed and the general feeling of those members present was that the club will survive if the membership supports the activities offered. The most attractive disk prices have been obtained for the members benefit, not only will you get top quality disks guaranteed for five years, but you will be actively helping your

club. Another bonus is that by buying disks you keep your membership fee down. SO WHAT ARE YOU WAITING FOR - SUPPORT YOUR CLUB NOW - AND SAVE MONEY.

The AGM saw the announcement of a major new service within BASUG - this is the formation of a Macintosh Special Interest Group. The number of new and existing members with Mac's has increased to such an extent that we must now offer a service to allow information to flow more rapidly. The new SIG is a integral part of BASUG and will prevent the club from becoming stale. Those members who use the Mac and did not join as a Mac member should drop a line to the membership secretary -, this will enable them to receive a MACSIG newsletter in the near future.

The Apple][range is still well supported and my sources tell me that many new software packages are being produced in the States. I wonder how many people thought that the Apple][would still be in the top ten over six years after its introduction. Whilst on this subject BASUG will soon be in a position to offer Software Disks running under C.P.M. Our intrepid Software Librarian is now in the process of having some disks formatted for the Apple.

PRODUCT NEWS

By Dr. Peter Baron.

Among the press handouts which came through my letter box during the last couple of months, was one from Apple which is, perhaps, yet another reflection of the social ills of our time. After a meteoric rise of sales and the creation of many new jobs, the microcomputer industry seems to have hit a definite low, well before many companies thought that this would happen. Anyway, back to Apple. The handout states "Hemel Hempstead, June 17th 1985. Apple Computer today began implementing a reorganisation plan to streamline the company and prepare for future growth by announcing consolidations which will result in a loss for the third fiscal quarter of 1985." It goes on to say that Apple intend to organise the company along functional, rather than product lines and will reduce the manufacturing facilities from six to three, with a reduction of 1,200 jobs. The Macintosh factory in Fremont, California, will become the primary manufacturing site, where both the IIc and Macintosh will be built. The Singapore factory will manufacture the //e and that in Cork will support the European market. The document also states that it is expected that the reorganisation will result in a unified cost-effective company focussed on the key markets of education and business.

DMS Electronics produce quite a few useful goodies, including a stand alone barcode reader suitable for all computers, especially the Mac, and a DMS Apple/6522 interface which provides access to four 8 bit input or output ports, two handshake lines for each port, four powerful 16 bit timers and two shift registers. Recently, they sent me some information about the Peacock RGB colour module for the Apple //c. This connects between the computer and an RGB colour monitor, does not require a separate power supply and produces enhanced colour graphics and text, with a dip switch facility for choice of text colour and background. Price £76.00.

Superbase was reviewed in Hardcore earlier this year and we hope to have an article on Superscript, a word processor, in the next issue. Superbase is not just another database, but is a full blown professional package, with extensive features, making it more powerful than dBase II, but with a friendly menu-driven approach. Programming can be done by an easily understood form of BASIC. Both Superbase and Superscript run on the Apple //e and are available from BASUG at 30% off RRP.

I see that MacPublisher is available in the UK, from P & P Microdistributors. Oh boy would I like this disk, with Mac and Imagewriter ! I haven't seen the program in action, but it is supposed to be a complete electronic publishing system, allowing the computer to display a fair approximation of the pages it will print. Multi-column printing, headlines and the inclusion of graphics are possible, together with the ability to constantly recalculate pages and change their geography. MacPublisher remembers the relationship of each element to every other. There are programs available for Apple IIs which follow the concept of MacPublisher, though one suspects that they are somewhat less able.

A STATISTICAL DATABASE

By Roger Harris.

The following article deals with a statistical database which I developed as part of a share market simulation program. Historical time-series data is stored in large HEX dumps which may be updated on a rolling basis. Minimal use is made of dimensioned arrays, e.g. 10 DIM A(99,51). HiRes graphics screen 1 is available to the data.

The database is intended for use with a standard 48K (i.e. 37K) II+ system with at least one disk drive.

Although originally intended for use in processing share market prices stored in a two dimensional array it could be used with one or more time series measuring, say, humidity, rainfall, pollen counts or milk yields.

The database contains three main parts:

1.. A large two dimensional hex dump containing, say, all the weekly prices for a list of shares for 1980.

2.. Several hundred small one dimensional hex dumps containing the prices for the same list of shares with one hex dump per week starting with the first week of 1981.

3.. A suite of programs to service the hex dumps and to perform analysis.

The general scheme of operation is as follows:

```
10  Load the large array
20  Do calculations on large array
30  Update it with a small array
40  Move the large array back one week.
50  GOTO 20
```

Moving the large array back one week and then updating it with a small array works in a manner similar to that employed in a moving average calculation:

```
10  Start with a queue of numbers.
20  Calculate moving average.
30  Add a number to the head of the
    queue.
40  Subtract a number from the tail.
50  GOTO 20
```

The simplest and most obvious way of storing a large array would be in an array, say, A(99,51) which would store 100 files each containing 52 numbers.

Applesoft uses five bytes to store a floating point number and a few extra bytes are needed to record the name, location and structure of an array so that 5200 numbers would need a minimum of 26,000 bytes.

The loading and saving of such an array would be slow if stored on disk in a sequential file and slower still if in a random access file.

By storing the numbers in a hex dump one gains the benefit of compactness (only four bytes per number) and a significant improvement in disk access times by using BLOAD and BSAVE commands.

The 'base ten' decimal system assigns ten possible values in the range 0-9 to a single character. By using a single eight bit hex character one can use numbers in the range 0-255. By using the position-value method a string of 'base 256' hex characters can store numbers much more compactly than 'base ten' characters.

Applesoft's floating point decimals may have none or up to nine characters to the right of the decimal point. Numbers stored in the hex dump have none and one must choose a suitable multiplier such as 1000 which will give three decimal places.

The maximum integer values which may be stored in strings of bytes are as follows:

```
1 byte  = 256^1-1 = 255
2 bytes = 256^2-1 = 65535
3 bytes = 256^3-1 = 16777215
4 bytes = 256^4-1 = 4294967295
```

The number of bytes chosen may be determined by the range of the floating point numbers and the number of decimal places needed. For floating point numbers with three decimal places, four bytes will be sufficient to store a number in the range 0.001 to 4,294,967.295.

In direct contrast, four 'base ten' characters can store numbers in the range 0.001 to 9.999. One can easily understand the lure of bytes with sixteen or more bits.

Numbers in hex are prefixed with a '$' sign so that $12 = 18 'base ten'. For example, 1,000,000 = $0F4240. In memory all the numbers are in hex so the '$' is not shown and $0F4240 would look like this:

```
4200- 40 42 0F 00
```

The first number, $4200, is the address number of the first memory location in the line of numbers and $40 is the hex number, or byte, in that memory location.

Address numbers increase from left to right so that the position-value rules of decimals work in reverse. You could, if you wanted to, use descending addresses to store increasing values so that the hex strings in memory would look like hex numbers written on paper, e.g.,

```
4200- 00 0F 42 40
```

A hex dump containing the numbers 1,000,000 to 1,000,007 would look like this:

```
4200- 40 42 0F 00 41 42 0F 00
4208- 42 42 0F 00 43 42 0F 00
4210- 44 42 0F 00 45 42 0F 00
4218- 46 42 0F 00 47 42 0F 00
```

That dump is quite easy to inspect for the hex strings are in groups of four. If they were in groups of three the hex dump would look like this:

```
4200- 40 42 0F 41 42 0F 42 42
4208- 0F 43 42 0F 44 42 0F 45
4210- 42 0F 46 42 0F 47 42 0F
```

There is a saving of space of 25% with a corresponding 33% increase in capacity. You will have to decide whether to choose legibility or capacity.

A pocket calculator able to perform hex<=>decimal conversions is desirable, although not essential. For the greatest convenience, choose one which can perform all the common scientific functions. It should be able to convert a floating point number into an integer, usually by setting the decimal place to zero, and then convert the integer into hex, and vice versa.

Both Casio and Sharp make such calculators. The Hewlett Packard 16C converts integers only. There is no way of directly converting floating point numbers into integers without re-keying. This is a distinct disadvantage. Its relevant floating point operations are restricted to add, subtract, multiply and divide.

Let us now look at the subroutines which will be used to build and maintain a database with the following characteristics:

The database will begin at location $4200 (16896) and stretch to $9340 (37696). A small area between location $4000 (16384) and $41FF (16896) will be used for file sequence numbers and for updating data; this will be explained later.

All the data is located above the top of Hires graphics screen page 1. Ordinarily for non-graphics requirements there remains a program and array space of 14335 bytes stretching from $800 (2048) to $3FFF (16383).

```
  3 Decimal places
  4 Bytes per floating point number
100 Files (time series)
 52 Floating point numbers in each file
```

It will be necessary to protect the database from Applesoft's string and array handling routines so that HIMEM will be set to 16383 ($3FFF).

Let us first of all look at a subroutine to convert floating point decimals into hex-equivalent decimal integers which may then be POKEd directly into memory.

```
AD = Address in memory
FI = File number
PP = Floating point number
SN = Series number

SF() = Scale factor.

200 AD = 17104 + (FI * 208) - (SN * 4)
210 ::: PP = PP / SF(FI): REM Optional
220 PP = INT (PP * 1000 + 0.5)
227:
230 FOR X = 3 TO 0 STEP -1
240 Z = 0: Y = 256^X
250 IF PP >= Y THEN Z = INT(PP / Y):
      PP = PP - (Z * Y)
257:
260 POKE AD + X, Z
267:
270 NEXT X
280 RETURN
```

Variable AD is the address in memory of the least significant, leftmost, byte of the four bytes which will store the number PP. The address will be indexed by X within the FOR-NEXT loop. FI is the number of the file being accessed and is a number in the range 0-99. In line 200 the value 208 is the length in bytes of one file, i.e. 52 numbers multiplied by four.

SN is the index number of a string of four bytes within a file. In each file, SN=1 is the highest address in memory and SN=52 is the lowest address. The address of hex string SN is calculated downwards from address FI.

Thus, by assigning suitable values to FI and SN, line 200 will calculate the address of any of the 5200 hex strings. In file 1, the hex string with address SN=1 will lie just below the hex string with address SN=52 of file 2.

When performing a weekly update of the files, the latest data will be POKEd in at address SN=0, thus overwriting the last, i.e. oldest, hex string of the next file. Then, by moving all the hex strings down in memory by four bytes all SN addresses will be in the correct relative positions in memory.

The subroutine.200-299 may be used to load floating point numbers into memory and the resulting file may be BSAVEd by:

```
500 PRINT D$;"BSAVE LARGE.FILE, A$4200,
      L$5140"
510 RETURN
```

One way of moving all the hex strings down in memory is by BSAVEing the hex dump starting at address A$4204. The next time the hex dump is BLOADed, do so at address A$4200.

Line 210 is optional. It caters for time series which are not continuous. In the share market, share prices are sometimes adjusted as a result of changes in the share capital of a company. The value of a company may be the share price multiplied by the number of shares issued. For a given value and point in time, the price of a share will vary inversely with the number of shares issued.

In the case of a change in the company's capital, a price of, say, 120 pence on a Friday may be followed by a price of 60 pence on Monday. The share price has not fallen by 50%. All that has happened is that the number of shares has doubled. The total value has remained the same.

The time series must then be compensated for this change. One way is to multiply all the historical numbers in the series by a factor of 0.5. This does mean a lot of reading and writing of files.

The simplest way is divide each number by a scale factor when the decimal-to-hex conversion is performed. Then, to read a file, simply multiply the numbers by the same scale factor:

	Wed	Thu	Fri	Mon	Tue
Price in market	116	122	120	60	62
SCALE FACTOR	1	1	1	0.5	0.5
Price in File	116	122	120	120	124
Price when read	58	61	60	60	62

When there is a break in the continuity of the time series then the Scale Factor is changed, i.e. a single number, not the whole file.

If your data is presented in different units, e.g. inches one day and metres the next, then the use of such factors will ensure the integrity of the file data.

Once floating point numbers have been poked into the hex files we will need a subroutine to read the files.

```
100 FOR SN = FR TO LR
107:
110 AD = 17104 + (FI*208) - (SN*4)
120 PP = 0
127:
130 FOR X = 0 TO 3
140 PP= PP + PEEK(AD+X) * (256^X)
150 NEXT X
157:
160 P(SN) = PP * SF(FI)
170 NEXT SN
177:
180 RETURN
```

This subroutine will read one number or all the numbers in a file depending upon the values assigned to FR, first record, and LR, last record, in line 100.

The numbers are loaded into a one dimensional array P().

A calling subroutine might look like this:

```
6000 FR = 1: LR = 52
6010 FOR FI = 0 TO 99
6020 GOSUB 100
6030 GOSUB nnn: REM Do calculations
6040 NEXT FI
6050 RETURN
```

Line 6000 sets the range to be read in each file and with the FOR-NEXT loop ensures that all the numbers in all the files are read and processed by subroutine.nnn.

There are further subroutines and files to be explained but they will have to wait for the next issue.

** !!CLUNG!! **

In HARDCORE Vol 5(3), June 1985, page 43, col.1 the program lines 200-215 contain the instruction 'GOTO 120'. This should read 'GOTO 220'. The author apologises for this error.

BEGINNER'S COLUMNS

MORE DEBUGGING TIPS

By John Sharp.

Some debugging hints were covered in a previous Beginners Page. There are a number of things that can go wrong so we will carry on trying to sort out further problems.

Having carried out the tips in the previous articles, your program may still not work because you have errors which are errors of logic of some sort. These are harder to debug, because the computer doesn't tell you directly where the program is going wrong.

Consider the mistake of a misdirected line number.

```
10 FOR N = 1 to 10
20 M = N * N
30 IF M-N > 30 THEN GOTO 60
40 NEXT N
50 PRINT "NONE FOUND"
60 END
600 PRINT "IF N = ";N ; "THEN M-N IS
    GREATER THAN 30"
```

What we want to happen is that if the difference between M and N is greater than 30 then we print the value of N (which as shown below should happen when N reaches 7). Because of mistyping in line 30 the program is directed to line 60 instead of the correct 600. By looking at the listing this is fairly obvious. However, this listing is short and because of this it is easy to pick the mistake up. This is often not the case, especially if line 600 does not come up on the screen at the same time as the offending line. Let us look at a procedure for finding out what the problem is. Running the program produces the prompt back.

You know it should produce a printed result, so your immediate reaction is to say "IMPOSSIBLE!! STUPID * # % !! COMPUTER" - but it is your fault in fact.

The first thing to do is print the values of N and M. Once you are out of the program in immediate mode then the variables are still stored within memory. So just typing:-

```
? N,M
```

produces the answer:-

```
 7            49
```

A quick calculation with pencil and paper says this is correct. If N = 7 then M = 7 * 7 and if N were 6 then M would be 36, M - N would be 30 and so the value of M-N would not be greater than 30. Thus 7 is the value we expected to cause it to go out of the loop with at line 30. By printing these values directly then you know that that part of the program is working correctly. Why then is is not going where you want it to? Where is it going? In this case looking at line 30 tells you that the mistake is that it is going to line 60. In more complicated cases it may not be as easy. It would be of great help if the computer told you where the program was jumping to.

Fortunately the APPLE has just such a means of letting you know what is going on. The special command is TRACE. If you set the trace on and type RUN as follows the screen should look like:-

```
TRACE
RUN
#10 #20 #30 #40 #20 #30 #40 #20 #30 #40
#20 #30 #40 #20 #30 #40 #20 #30 #40 #20
#30 #60
```

Every time the computer goes through the line it prints the line number with a '#' in front of it.

You can look at the listing and follow it through working out logically what should be happening. This is called "dry running", and would be useful to do this in case.

Line 10 first sets N = 1

Line 20 find the square of N and sets the variable M equal to it.

Line 30 checks the value of M-N with the number 30, if M is less than 30 then it ignores the rest of the line. Since M-N = 0 then the program moves onto line 40.

Line 40 sends the program round the loop, i.e. back to 20.

Line 20 says N is increased by 1 to 2. It is not yet equal to the limit of 10 so carry on to line 30 again and do the check once more.

It continues going round and round until, when N = 7, M-N is greater than 30 and the statement being true allows the GOTO 60 to be executed. The last line number printed out by the tracing routine is '#60'. If you have noticed this then the error is picked out.

In this case it is possible to put the listing and the trace on the screen. Normally great lines of accessed line numbers are generated and the your eyes will go funny trying to keep up with what is happening. One way to overcome this is to use the same facility you can use to slow listings down, the CTRL-S. Put the second finger of your left hand on the CTRL key and keep it there. Put your index fingers over 'S' key. By pressing the'S' key alternately as an on and off key, it is possible to have very fine control over the scrolling.

Correct the error in line 30 by making it 600 instead of 60 and RUN the program again. What happened? All the line numbers appeared again with something on the end:-

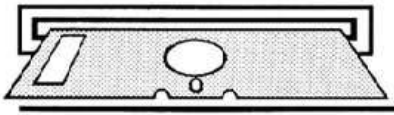
```
RUN
#10 #20 #30 #40 #20 #30 #40 #20 #30 #40
#20 #30 #40 #20 #30 #40 #20 #30 #40 #20
#30 #600 IF N =7 THEN M - N IS GREATER T
HAN 30
]
```

The trace facility was still on and when it came to line 600 it carried out the print action straight after printing out the '#600". This is very useful if you wish to find out at which line number a particular statement is being output or where an input is expected.

The trace facility would be a nuisance hereafter so switch it off by typing:-

```
NOTRACE
```

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MEMDOS: ANOTHER POINT OF VIEW

By Kevin J. Molloy.

In the June issue Dave Miller described MEMDOS as " quite powerful in its field of data manipulation and retrieval" but "for program development, it is not as powerful as Apple DOS". This broad characterisation is supported by a list of detailed comments on the way MEMDOS organises and structures itself and the systems you can write with it. Virtually without exception, important features of MEMDOS are successively misinterpreted, cited as of dubious value, and to a large extent, reported with a degree of factual inaccuracy sufficient to leave those of us who know MEMDOS wondering if there could be another product with the same name. This unjustifiably bad press was unfortunately compounded by Tony Corinda's article on program generators in which MEMDOS was the first system mentioned.

MEMDOS is not, nor has it ever been promoted as, a program generator. It is demonstrably the most powerful and rapid application development environment (with its own macro language for file/screen/report handling) available on any 8 bit micro and will stand comparison with most if not all systems on larger machines. You can construct systems that would be impossible or impractical with DOS 3.3. However simple or complex your application you can expect to write it with as little as 10% of the code normally required.

Many of the adverse points made in Dave Millers article were relatively minor, as in the case of quibbles with terminology. However, some major sections were grossly inaccurate, with both omissions and errors of fact.

Data Dictionaries

The MEMDOS use of predefined data dictionaries was said to be problematic, because it increases the number of variables in a program and "the variables associated with MEMDOS files cannot be used for other purposes". In fact the variables can be accessed and manipulated at any time for any purpose. Furthermore, MEMDOS extends the number of different types of variables available to include binary and date. The latter allows dates to be stored in two bytes and to be validated automatically when used in an input screen or mask.

The fact that masks also have data dictionaries allows (if you like) the variables in a screen to be the same name and type as in the file. This, plus the fact that MEMDOS has its own macro language for handling screens and files, allows a screen full of data to be input and written to file with only three 8-10 character statements. Another two or three statements can retrieve and display any record with the screen properly labeled and formatted. Applesoft under Dos 3.3 would require vast amounts of code to achieve the same result!

Filing

ISAM filing receives much criticism. Single key files are said to restrict the search criterion to a test of equality while multikey files are said to be only a limited solution. It is simply untrue that one cannot return a set of records whose key lies within a given range. An 8 character read statement will set the lower limit, Blimit will set higher limit and Next will return all the records within the range.

It is true that one may wish to initiate a complex search involving variables not in the key and this does involve a test of the form IF.. THEN.. . However, whereas this is sometimes necessary in MEMDOS it is always necessary in Applesoft and the amount of code required will easily amount to 10 fold that required by MEMDOS.

The most important thing about MEMDOS filing is that the ISAM system gives an order to the records which is associated with active variables in the program. Applesoft can only deal with records by a number whose value is fixed according to the order of creation and record length must be fixed if data is to be subsequently changed. MEMDOS records vary in length according to the amount of data at a given time.

In a name and address file, if we want to see records in alphabetical order or print a report with such an order Applesoft files must be sorted. With MEMDOS we simply make "name" a key and read by NEXT to return records in order. Since we can have 10 keys we can have 10 prime orderings equivalent to having the file presorted in 10 different ways. Additionally, we can have sub-keys so that each prime order may have subdivisions e.g. part number within customer order number within customer name. All of this is achieved with two statements when the file is created and sort routines are usually only needed when the system design is bad.

The automatic ordering of keys has other benefits as when one wishes to read one record in several thousand. The orderings allow MEMDOS to employ a binary searching algorithm which can retrieve a record with a given key value immediately irrespective of whether it is the 1st, the 10000th or anywhere in between.

Screens and Masks

Masks were said to be "very useful and make it easy to construct comprehensive programs with very little effort". However, no mention was made of the ability to use the screen to format print reports. A screen image may be printed with one statement, or report lines may be set up which can be called individually with 1 program statement. A powerful feature allows print lines of 1 to several hundred characters to be set up even on a 40 column screen.

The simple validation/formatting characters that can be appended to MEMDOS screen variables ensure a perfect report every time. Have you ever had to struggle with aligning fields in Applesoft reports? Incidentally, these formatting characters will allow strings to be treated as reals or integers, to have a decimal format with a given number of places after the point and to determine display with left or right justification. During input this eliminates all first line validation.

Utilities

The utilities disk on the review system was clearly faulty and this is solely MEMSOFT'S responsibility. However, of the many useful utilities on the disk it is unfortunate that a facility such as the optimiser was singled out for extended treatment.

Firstly MEMDOS is so fast at data retrieval and programs tend to be so short that the optimiser would rarely be used. Most programmers only want the optimiser to remove REMS from finished systems which have large amounts of non disk processing where the Apple's slow processor can be a problem. (MEMDOS has a special calc function which can handle decimals to 48 places without rounding errors.) Secondly, the MEMDOS manual specifically warns about the problems that can arise if variables are indiscriminately optimised. The important thing is that you have the choice to include the variables in the process or not.

Error Handling

As with filing, the important point about error handling was missed in the review. When MEMDOS carries out a file or screen related operation it automatically logs whether it is successful or not. Unlike Applesoft it does not "crash" every time something goes wrong. This is very powerful since traps may be built into programs to cause helpful branching as when one meets the end of file. The reason that there are so few error codes is that one only needs these few to cover all the eventualities. However, should non-MEMDOS related problems arise all the normal Applesoft error messages are operative and can be trapped at location 222 as normal.

MEMDOS and DOS 3.3

When comparing MEMDOS to DOS 3.3 it is important to be clear about a number of points. It is simply not true that lower case is not supported and MEMDOS does support binary files. Many of the utilities on the review system use binary files! Furthermore, because MEMDOS organises a disk in the same way it organises a file, disk entities of the same type list together on the catalog, i.e. all binaries together and in alphabetical order, all masks together in order, etc., etc. MEMDOS actually supports a larger number of disk entity types than does DOS 3.3.

It is true that at disk level MEMDOS and DOS 3.3 are different environments but this does not mean that they are

incompatible. It is perfectly possible to read an Applesoft file and write the data as a MEMDOS file and vice versa.

Conclusion

MEMDOS achieves dramatic improvements over standard languages such as Applesoft and most of this power and economy of code stems from the novel way it organises itself and its peripherals. Because of these differences MEMDOS can seem strange at first and will remain puzzling if one is always looking for equivalent operations and techniques to those of DOS 3.3/Applesoft.

MEMDOS is in effect an ultra-high-level language and just as one would expect to use different techniques at assembly code level and Applesoft level one must adapt to the higher level environment of MEMDOS. Once a programmer allows this process to begin he can stop doing simple things the hard way and begin doing complex things the easy way.

Anyone who has the least interest in programming and system design or who wants to be able to control the exact shape and performance of their systems can benefit from MEMDOS, as have over 12000 other users throughout Europe.

*** ***

* Dr. Kevin J Molloy is the Marketing Director of Memsoft Ltd.

APPLE //C TO CENTRONICS:

A SERIAL TO PARALLEL CONVERTER

By G. E. Randall.

Having recently acquired an Apple //c, one of the first problems became how to make use of my existing printer. A problem because the //c has a built-in serial interface but my printer was a parallel Centronics 737. The solution was to design and construct a converter circuit which could accept the serial data from the //c, format it correctly into parallel 'bytes' and pass this parallel data to the Centronics printer.

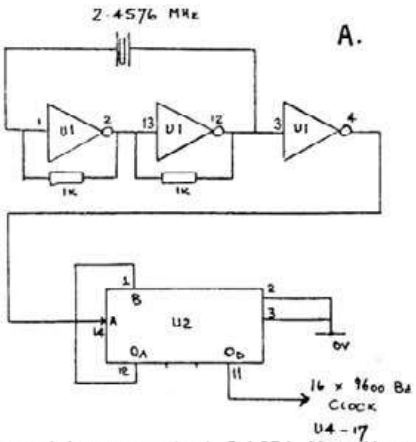
Fortunately, most of the conversion can be handled by a single chip called a UART (pronounced U-art) which stands for Universal Asynchronous Receiver Transmitter- with a name like that you can understand why the abbreviation UART is always used!

Circuit Description

The Uart needs a few additional components around it to turn it into a complete serial-to-parallel converter. These additional parts perform the following functions-

A. Clock

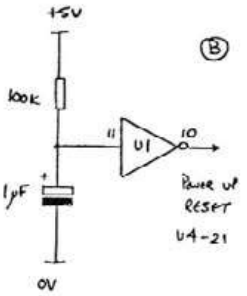
A continuous clock waveform is initially



generated by a standard 2.4576 MegaHertz crystal and then this is divided down to produce the clock needed by the Uart. The Uart operates from a clock running at 16 times the baud rate of the serial data. While the //c serial port can be configured to a wide range of baud rates from 110 bits/sec to 19200 bits/sec, the default value is 9600 bits/sec and hence the Uart clock is set to 16 times this rate.

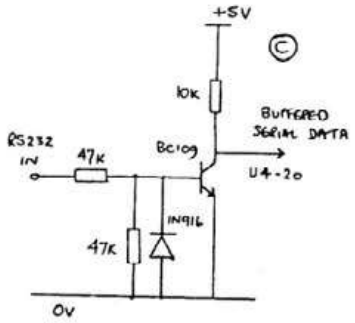
B. Power up Reset

This simple arrangement generates a high level to clear the Uart when the power is first switched on.



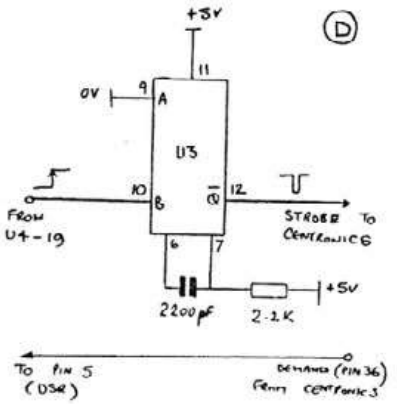
C. Input circuit

The incoming serial RS232 data is presented as a digital stream of voltage levels either around +12 volts or -12 volts. An input circuit is needed to translate this to 5 volt logic levels (0 volts or +5 volts).



D. Strobe

When a complete character has been received by the Uart and the parallel byte is ready to be sent out to the printer, a strobe pulse is generated. The Centronics recognises this strobe and accepts the next character. Printing however does not take place until the Centronics character buffer is full or a Carriage Return is received. While printing is taking place the printer is busy and can not accept any further data so some way has to be found to tell the Apple not to send any more serial data until the printing has been completed. This is achieved by feeding back a busy



signal from the Centronics into the serial port Pin 5.

Product Identification Number (PIN)

The baud rate of the serial link has already been mentioned. However a complete set of parameters have to be correct if the Uart is to make sense of the incoming data stream. The Apple //c allows for all types of serial communications by the use of a Product Identification Number or PIN. A printer is normally connected to Port 1 and the default configuration for this port is as follows-

Printer Mode
* 8 Data Bits and 2 Stop Bits
* 9600 bits per second
* No Parity

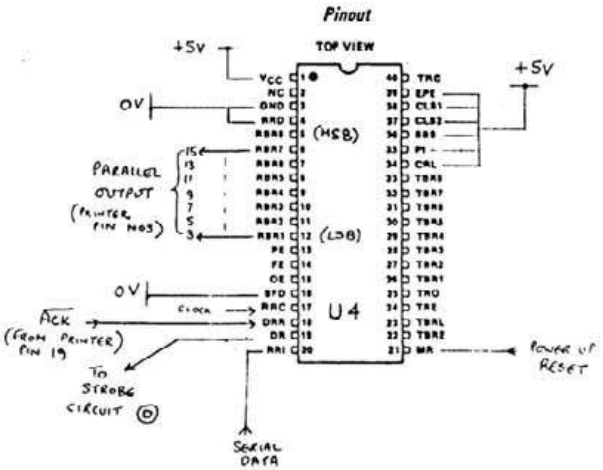
Do Not Echo Output on Screen
Insert LF After CR
Insert CR After 80 Characters

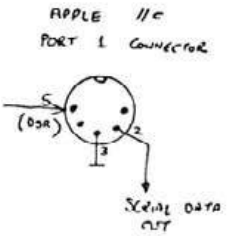
The parameters asterisked above are fixed in the circuit design and changing these entries in the PIN will stop the converter working. By using the default set of parameters, it is possible to just connect up the converter and printer and start printing.

Construction

I assume that anyone who decides to build this serial-to-parallel converter has already some experience in constructing digital circuits - I certainly wouldn't recommend anyone to tackle this as their first project!

HD 6402 CMOS/LSI Universal Asynchronous Receiver Transmitter (UART).





U1	74LS04
U2	74LS93
U3	74LS123
U4	6402 UART

A few general comments on the construction may be useful though. All the components, including the Uart are readily available and can be ordered through the post (see the relevant monthly magazines which specialise in Electronics). A piece of Veroboard about 3.5 by 4 inches was used to hold all the components and the completed converter was then mounted in a small plastic box to provide some protection.

It is strongly recommended that IC holders are used especially for the 40-pin Uart. If the chip should fail for any reason at least you can remove it from the holder and try to sort out the problem. Leave all the chips on their protective foam until you have checked and double checked the wiring, then without touching the pins place the IC's into their holders.

The use of an oscilloscope was essential during the development of the circuit and will be needed to check out the various functions once the construction is complete. I did not fit the UART until I was satisfied that all the surrounding circuitry was working properly. A final check on each socket on the UART IC holder is also worth while to ensure that the wiring is correct.

NOTE...Neither G. E. Randall nor Hardcore can accept any liability for loss or damage attributable in any way to this article. Anybody embarking on a construction project must accept total responsibility for any adverse consequences. If you have any questions, please write to the Editor, Hardcore, who will forward them to the author. Please also remember that BASUG operates a hotline service.

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FILING - I.S.A.M. supports up to 10 keys each with 10 sub-keys if required, each key being up to 255 bytes, simple macros to write, update, read, delete and add records, virtual elimination of sorting, 16 multi-user record locking modes on hard disc. SCREEN - interactively designed and modified in free format using Utilities, 40 or 80 column, verification of data at entry, numeric, binary, positive and date, forward and backward skipping between fields, full editing within fields, specified decimal alignment, overlays and globals, single command to display whole screen. SUBROUTINES - called by name with up to 32 parameters, local variables, nesting 250 deep and recursive. REPORTS - free format design and modification (as for screens) using Utilities. ADDITIONAL FEATURES - addition and subtraction of character strings up to 48 digits, execute facility, extension of 'ON ERROR' capabilities.

MICHAEL SALT ASSOCIATES, 13-16 JACOB'S WELL MEWS, GEORGE STREET, LONDON W1H 5PD MEMDOS is a registered Trademark of MEMSOFT (S.A.)

PROGRAM GENERATORS - PART II

By Tony Corinda.

In the first part of this article we took a general look at Program Generators, the software tools that have been called 'Programs that write Programs'. Perhaps this is a misleading description because they don't actually conceive the program - more often than not, they offer you a library of subroutines which can be collated into a larger program. Having organised the routines, the Generator then codes it for you.

To be fair to the Program Generator, it does a tremendous amount of labour-saving work and offers you a wide range of options. You have to contribute the idea, the overall scheme of things, and then its down to the Generator to translate your ideas into a workable piece of software. It is not creative and cannot invent anything by itself. You might say that you are the designer and it is the manufacturer. As will be seen, one depends on the other.

The quality of the end program is going to depend very much upon the amount of trouble you take in using the Program Generator to best advantage. You cannot produce any well designed programs without planning ahead. You need to plan as much with a Program Generator as you would by any other method. What is very different from normal methods is that you are greatly assisted and controlled in the planning stage. You often have choices and options but, just the same, you are not free to do anything you like, whenever and wherever you feel like it. This control leads to a discipline which effectively keeps you in check. (Let's hope you haven't set your heart on a chess program!).

Generally speaking, it pays you to design the whole program before you start to utilise the Generator. Using various tables and charts that are supplied, it is an easy matter to plan out your requirements. This you can do for yourself by simply writing it out in plain English. It will be easy to transpose from English to Code by stepping through a selection of ordered subroutines - and even these are presented in Menu form, written in English. Things like screen displays are best worked out with pencil and paper before coding. It is much easier to do it with a graduated word processor rule or by using pre-printed screen and printer layout forms. These items are cheap and are available from 'Inmac' - the computer supply firm that dish out free catalogues like as though they were tax demands.

Another important reason for the great 'Plan Ahead' method is that when using a Program Generator - you are constantly required to move forward through the program under construction. You can't always stop when and where you like. You have to reach certain set points before you can exercise an option to Save current work to a disk and continue later. Pre-planning enables you to know when and where you can opt out.

I mentioned before a Program Generator called "The Last One" (Called 'TLO'). In my view this particular program is unbeatable for this type of work. To give an insight into the operation of TLO - let us briefly run through the construction of a program and see what is involved. Let us suppose that we want to create a program that produces a Library of the contents of our disks. Notice we say 'create' and not 'write'.

Our Library Program should be capable of telling us where any program is stored on any disk. It is a glorified index and filing system and to be effective, we want it to store Catalog Names, Relate them to the right disk, Retrieve names in any order, Search for partly remembered names (some of us forget them) and produce a printed Alphabetical Index of everything or selected subjects only.

This is enough for our illustration but it is by no means the limit of what could be done in this direction. Now we can start the planning.

The Program Generator will want to know three main things. (1) What sort of

information needs to be recorded. (2) How much of each type. (3) What you want to do with it. We plan our program so that we can either add, modify or retrieve information in any order, at anytime.

Information going in becomes the first part of our program because it is a bit tricky to retrieve from a disk - something that hasn't been recorded....

We are required to identify and classify information by type and size. Three types are possible which ultimately depend upon the method used to handle variables in Applesoft - although you need not know that. "Alpha" fields define nearly any character. "Numeric" fields define numbers which may or may not be used in calculations. "Date" fields are especially designed to hold dates. This is a special field because TLO has a subroutine which checks dates when entered during the operation of your end program - and rejects things like FEB.31st...

Classifying the information into the right type is quick and easy with plenty of user-friendly safety traps which allow you to keep changing your mind. Next you say how much space you wish to allocate to each piece of information. You simply estimate the largest field (longest name) likely to be required and that much space is reserved for all in that field. The Apple 'Random File' structure is clearly the basis of this technique. This done, you have completed what is called "Field Definition" and you move on to create a Flowchart, from a Menu of 14 Options, which paramountly becomes the sequence and order of your program.

To create the Library Program, we would choose from the Flowchart Selection Menu things like "Write to File", "Read File", "Sort or Search" and so on. We would plan the sequence required before calling the Menu and the planning is easy; could be done on a serviette over a cup of coffee. No funny drawings and mysterious geometric shapes linked to look like DNA chains. You will get a subroutine in your Library Program that opens a file (under any name you like), records to that file, called "Writing" and Reads from that file when you want to. All done from the Flowchart Menu by selecting a single number which designates some specific subroutine tailored to your needs.

This process of program design and planning goes on until you have covered all of your requirements. Nearly everything you will want to do is allowed for. You can even select a pre-written subroutine to allow for mistakes to be rectified if and when they happen later in your end-program. This means that the operator of your program can be controlled and given the chance to amend errors, edit or modify data as required. If you want something exceptionally different (perhaps, for example, to insert your own 'Password Routine') you are permitted entry into the code-writing via an Option called 'Calculations' - which is their polite way of saying 'write your own bloody Basic'. This loophole lets you enter any formula you like enabling you to contribute your own coded work. It does, just the same, check up on you as you enter it - and rejects there and then anything questionable or totally wrong. Effectively it monitors your Applesoft. You can Peek, Poke, Call and virtually operate with a free hand via the Options available - and yet get by, with little understanding of computer code (Applesoft or anything else) by sticking to the comprehensive Flowchart subroutines. It allows you to create without presupposing you are The Creator.

Once away from the Flowchart Menu one is faced with a questionaire about things like "EOF" (End of File) and others, all of which amount to telling TLO where to go. It needs to know some of the GOTO places - but finds out from you in very simple English terms. It never mentions nastly Basic phrases when a good old Yes or No ? will do.

Here the general planning ends and you are given a chance to formulate screen displays for the end program. This is where you can show a flair of your artistic skills and give the program a professional appearance. Become the Michaelangelo of the Monitor. Information input points can be positioned as required with borders and boxes situated to please the eye. Forms, charts and suchlike are constructable from simple designs and lend themselves to give an overall professional touch. Some "Screens" take quite a lot of designing - and facilities are available to 'Save' these to a working disk where they can be recalled and re-used whenever needed. (TLO has this as an extra and it is called "Screensaver").

It is not just a matter of 'making things look pretty' when it comes to screen design. It is essential to smooth, ergonomic working, that screens are constructed and portrayed for ease of use. First things first. Top to bottom or left to right - these things are taken into consideration -and TLO takes them into consideration and allows you to decide on behalf of the operator. They call it, "Tidy Screen" - but that's the tip of the iceberg.

The final stage is reached when, having gone from Field Definition, through Flowcharting to Loop and Branch (Gosub/Goto) control, through Screen Design and Layout - you come to the point where TLO takes over completely and assembles your designed program and writes the code. It tells you how it is getting on as it goes along - writing error-free code at about twenty compacted lines per minute. When completed, it saves the whole program to disk and from thereon, the program written is freestanding (needs no working subroutine library) and it becomes your copyright property.

In the next part of this article I shall examine methods to edit this end program; how to modify and correct, if needed, and the effect of Compiling the end program from Basic to Binary.

*** ***

Ed. Opinions expressed by Tony are his own and do not indicate any bias on the part of HARDCORE.

Submitted by Peter Trinder.

MACTIPS

Thanks to Apple UK Technical Staff.

• Macintosh Audio Output Specs

What are the specifications for the audio output connector on the Macintosh? Is it a 0 db output, low or high impedance, load resistance needed, etc.

RESPONSE

The audio output connector for the Macintosh is designed to drive a stereo amplifier; however, you can (and we do) hook up 8 ohm speakers directly to the audio output connector to get sound. The output signal is 15 volts peak to peak to a 10K ohm load, the source is in series with 50 ohms. The Macintosh hardware people advise putting a potentiometer between the amplifier input and the Macintosh output because there is the distinct possibility of overdriving a regular stereo amplifier.

• MacTerminal Receive - Transmit Pairs

MacTerminal does not support the RS-422 protocol. MacTerminal supports an RS-232 type protocol and only uses the TX- and RX- signals. In fact, the modem cable for the Macintosh has TX+ and RX+ tied to ground.

• MacTerminal Communicating to DEC-VAX - Function keys not working.

It has been discovered that if you have not set the number of data bits correctly for communicating to the Dec Vax with MacTerminal then every thing will work except for the keypad function keys (i.e PF1 etc.). The Vax we have tried required the setting of 8 data bits no parity.

• MacTerminal communication with Another Macintosh transferring files

To be able to communicate with another Macintosh either over the phone or by direct wiring, the best settings to use are as follows:-

From the "Settings" menu:-

TERMINAL VT100, ANSI
COMPATABILITY 8 Data Bits, No Parity
FILE TRANSFER XMODEM, ANOTHER MACINTOSH

The cable to wire a Macintosh to another Macintosh is as follows:-

1.....1
2.....7
3.....3
5.....9
7.....2
9.....5

• Macintosh Numeric Keypad Commas and dots!

The Macintosh numeric keypad has a comma (,) key. When pressed it generates a period (.)!! In order to obtain the comma you hold the shift key whilst pressing period (.).

Therefore the only fault is that the keycap should be labelled with a period under the comma like so:-



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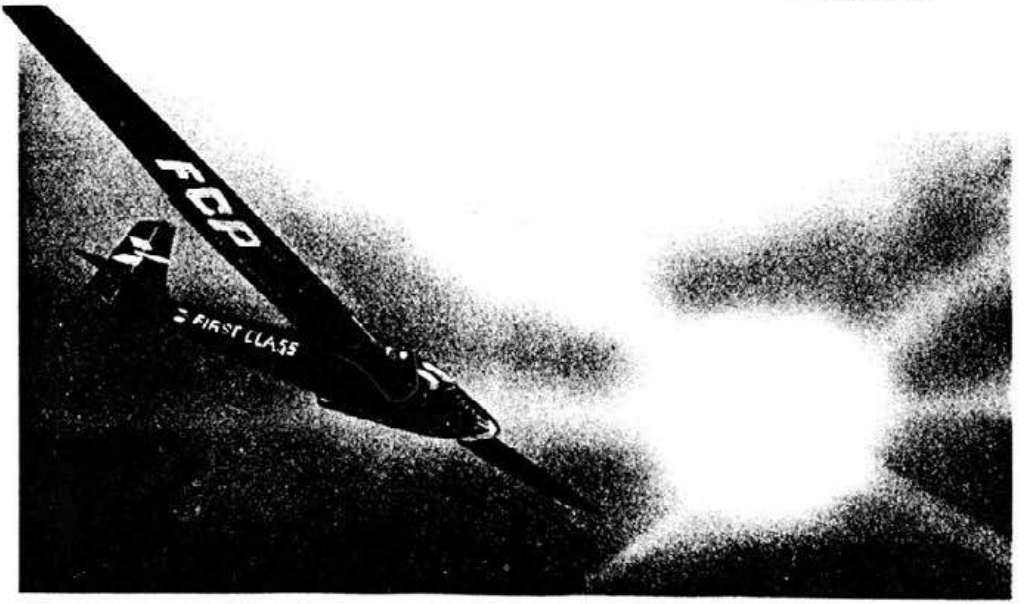
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• MacPaint Printing Catalog of Data Disk

Trying to print the Catalog of your data disk using MacPaint (Release 1.3) on a one drive system causes the system to BOMB. After power up, you must print the contents of a document before a catalog can be printed.

• MacWrite 10 Point Fonts and Superscripts

The top portion of a superscripted character is not printed when using a 10 point sized font in MacWrite

• MacPaint Show Page Crash ID=25

Following these Show Page steps will cause your Macintosh 512K or Macintosh XL to bomb and display error number ID=03, ID=02 or ID=25:

i) Open a MacPaint document - not the MacPaint icon.
ii) Show Page, by double clicking on the hand or selecting Show Page from the Goodies Menu, before selecting any other option which displays an alert box (a box with options such as "Save" or "Cancel").
iii) The next operation which displays a dialog box will cause your system to bomb. Error number ID=03, ID=02 or ID=25 is displayed depending on the dialog box displayed.

Workarounds:

A) Open the MacPaint icon, Close the untitled document, then use the File Menu to Open your paint document.

OR

B) Before selecting Show Page, perform any other operation which displays a dialog box. As long as the Show Page box is not the first dialog box accessed, the system responds normally.

• MacWrite Printing Large Documents

The following is not a bug although it helps illustrate how end users become confused regarding printing large documents.

Many users have received the disk full error message when trying to print large documents (over 40K), even after removing all unnecessary files from the disk the documents is on. When the document is moved onto the Macintosh XL's hard disk, the printing is successful.
Understanding the printing process explains this mystery The Print driver creates a complete copybit file of the document to be printed on disk. This file, which can be twice the size of the document being printed, always resides on the disk containing the driver file. Placing only system files on a microdisk allows your system to create a printfile up to 180K (a 60 to 70K document). You must use a hard disk to print larger documents. By the way, some programs do not actually spool an image to disk first, you can then print massive files with these programs. You can easily tell if this is the case, the program will not come up with the message "Now saving Printed copy to disk". Instead it will just start printing when you select to print.

• MacWorks Printing garbage on first document

There is a bug you might find the first time you print after turning your system on. If your document is 2 pages or more in length, garbage, missing characters or a scrambled document is the result. Print the document a second time and all is well. This is only encountered after first powering up when using MacWorks.

• Loopback connectors for MacTest

When testing the Macintosh digital board, Mactest requires that two Loopback connectors are inserted. The Loopback conectors consist of two links going from pins 4 to 8 and 5 to 9 on each of the Serial Ports.

• Making an alternative disk into the STARTUP disk.

A very useful tip:

You may have often had the need to change which disk should be the startup disk, this can be achieved by entering an application on the disk you want to become the startup disk and then quitting. BUT this is tedious, it can be acheived by just holding down the COMMAND and OPTION keys and double clicking on the FINDER on the disk you wish to make the startup volume.

Try it - you'll like it!

• Getting more space on Multiplan disks

Those of you who need more space for your Multiplan documents can use font mover to install a 9 point font on the multiplan disk. This will allow you to have 70 columns on the screen instead of 60 and 120 cols. in the wide print mode instead of 80. If you have both Chart and Multiplan you can trash the system icon on a copy of the multiplan disc and replace it with the system icon from the Chart disk.

• Macintosh External Video Port....Mac to Monitor.

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16 Quai de la Marne
75019
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• Macintosh External Drive Pin Outs

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3	GND	4	CA1
5	GND	6	CA2
7	GND	8	LSTRB
9	N/C	0	/WRTGATE
11	+5V	12	SEL
13	+12V	14	/ENBL
15	+12V	16	RD
17	+12V	18	WRTDATA
19	+12V	20	/PWM

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By H. E. Freeman

Automatic PILOT!

At the last flower show was a chap with a computer-based quiz program for know-it-all plant-o-philes. The first question on the screen asked for the genus name of the corn marigold (it's Chrysanthemum).

My first thought was that the program was doomed to failure - or a lot of disappointment for people who knew the name but couldn't spell it. Think about it. How do you error trap input that could range from the full correct name to an abbreviated, correct form such as 'chrysanth', to spelling variations on these themes?

Easy! Here's the code:

```
3. T: What is the corn marigold's genus
   name?
4. A:
5. M: C*R*SANTH*M*M ! C*R*SANTH
```

This code will print the question on the screen and accept as correct any variations on the theme you can think of. That's not bad for 3 lines of code! Try that in BASIC and you won't get away with less than 2K of code - and what about the other questions?

To be honest, these lines have a lot of code immediately behind them, plus a whole suite of programs that go to make up PILOT, a neat name that stands for the awful 'Programmed Inquiry, Learning Or Teaching'. You'd be right in guessing an American birth, in 1968, maturing to a standard, COMMON PILOT, in 1978. Implementations called ApplePILOT and SuperPILOT exist for Apple II and IIe machines.

PILOT is an author language, which means that what you see of the language is a small number of commands (about 26), behind which is an interpreter (and more). The beauty is that you don't need to know anything about BASIC or computing at all to be able to produce robust, interactive programs, complete with animation, graphics and sound.

It should be fairly clear from the name and the small program example that PILOT isn't an ordinary computer language. You can't write arcade games in it, or database or CAD/CAM software. But it is good at user/machine interaction - the type of to and fro activity you would expect from good educational software. In fact PILOT is best used for the production of Computer Assisted Learning (CAL) software, and in this and the next article I'll be looking at those features of the language that best suit it for this.

Let's have a look at the code again:

```
3. T: What is the corn marigold's genus
   name?
4. A:
5. M: C*R*SANTH*M*M ! C*R*SANTH
```

The commands take the form of a letter, such as 'T', and a colon. It doesn't take much imagination to see that 'T:' stands for 'print to the screen everything after the colon'. Similarly the command 'A:' stands for Accept input. 'M' is the 'Match' command: two things are introduced here: input is Matched to the text after the colon, which here contains several '*' characters. These are wildcard characters, so any letter can be used in their place in the input.

Separating the two words is the '!' character, which stands for OR, so this program segment will accept any spelling variations of the words "chrysanthemum" and "chrysanth".

Clearly we must tell the person if they got it right or wrong, and either let them have another go at the question or pass on to the next. Any action will obviously depend on the answer, but first we need some feedback to the input.

```
6. TY:WELL DONE!
```

'TY' means print this text if the answer is correct (Y=correct). Having congratulated the user we must go on to the next section. This is easily done with the Jump command:

7. JY:ROSE

Again we meet the MODIFIER, 'Y', which means IF correct THEN Jump to the next segment, called ROSE. ROSE is a label, and the next segment begins with the heading

20. *ROSE

However, we're jumping ahead of ourselves. What happens if the answer is wrong? There are two alternatives: we can give no feedback, just jump to the next section, but this is rude! The least we can do is give a hint or two before giving the correct answer. The intention is not to test, but to inform after all. Now we have a problem, because we want to go back to the A: instruction and at the same time give some new text, such as 'The answer begins with C'. What we need is a WHILE-DO loop which keeps going round until we get a right answer or we lose patience and give the correct answer. In PILOT this is very easy:

```
8.  T1:Not quite! Here's the first hint -
    it begins with a 'C'
9.  T2:Wrong again! here's the second
    hint - it starts 'chr...'
10. T3:The answer is Chrysanthemum.
11. J3:ROSE
12. J:@A
13. E:
20. *ROSE
```

A variable in PILOT called the Answer counter is put to one each time an A: statement occurs in the code. And every time the SAME 'A:' statement is met, the counter is incremented. It is easy to tell the program what to do on a certain value of the counter - just put the number against the instruction. So, in the example at line 8 when the counter is one the first hint is given. By the time the counter is 3 the programmer has decided to give the correct answer AND to jump to the next segment by the command 'J3:ROSE' - ie, jump to ROSE when the counter = 3. Line 12 is very important because it tells the program what to do if the answer is wrong. It says 'Jump' to the 'Accept' instruction, so a new answer can be input. Line 13 indicates the 'End' of the segment, whilst line 20 is the start of the next.

It isn't necessary to use segments at all, but they make debugging and program reading very much easier. There is even a PILOT equivalent of a subroutine. It has the command 'U:', standing for User subroutine. If we want a nice display on the screen when a user gets the right answer we can replace the code at line 6 with something like

6. UY:GOTIT

'U' is the command, 'Y' is the modifier and GOTIT is the name of a subroutine which like all segments begins with a label, GOTIT, and ends with E:. So our subroutine could be

```
100. *GOTIT
101.T:      @@@@@@@@@
102.T:    @@         @@
103.T:   @@   WELL   @@
104.T:   @@   DONE   @@
105.T:    @@         @@
106.T:      @@@@@@@@@
107.E:
```

The complete program might consist of the following segments

```
INTRO
CHRYS
ROSE
DANDELION
SUNFLOWER
FINISH
GOTIT
```

And the whole segment, CHRYS, might be

```
1.  *CHRYS
2.  R:this is a REMark, just like BASIC
3.  T: What is the corn marigold's genus
    name?
4.  A:
5.  M:C*R*SANTH*M*M ! C*R*SANTH
6.  UY:GOTIT
7.  JY:ROSE 8.  T1:Not quite! Here's the
    first hint - it begins with a 'C'
9.  T2:Wrong again! here's the second
    hint - it starts 'chr...'
10. T3:The answer is Chrysanthemum.
11. J3:ROSE
12. J:@A
13. E:
20. *ROSE
```

In the next article we'll have a look at more matching, maths, movement, graphics and sound.

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TIPS, TRICKS & TECHNIQUES

WPL TIPS

By Shmuel Brown.

A powerful feature of Applewriter II is WPL, its word processing language, enabling you to write your own procedures or command scripts. I pass along two tips that you may find useful:

i) writing embedded macros to package often used sequences of commands.

ii) numbering footnotes or references in a text, a feature not provided by Applewriter.

For example, say you want to put a quotation from a book in something you're writing. Proper form is to indent the text and print it single-spaced and you should always acknowledge its source. Embed the following directives in your text as shown and then run the WPL program quot. Note that the back-quote is used for underlining. There must be a 'return' after the last line of the file. The proper punctuation (1 or 2 spaces) must be entered on the line preceding the 'FS directive for proper filling. This is the text:

Here is a short excerpt from a book of which I am very fond. It is supposed to be a children's story, but there something in it for everyone.

'QL

For a long time they looked at the river beneath them, saying nothing, and the river said nothing too, for it felt very quiet and peaceful on this summer afternoon.

"Tigger is all right`really`," said Piglet lazily.

"Of course he is," said Christopher Robin.

"Everybody is`really`," said Pooh. "That's what`I`think," said Pooh. "But I don't suppose I'm right," he said.

"Of course you are," said Christopher Robin.*F

'QE

'FS

A.A. Milne, `The House at Pooh Corner`, Chapter VI`In Which`Pooh Invents a New Game and Eeyore Joins In.

'FE

At this point you can continue to enter the text of your treatise. The proper formatting is done by the embedded directives*F.

'FS

This is just an example of another footnote.

'FE

You run the WPL program before issuing the PNP. Please note that the letters all represent Applewriter II text files.

Here is a WPL program that will do it

```
        PND
        PPR [L]
        PUT`
        PPR Delete old footnotes
        DE/BASUG/Q2222
        y
        PPR Number footnotes in text
        B
        PSX 0
LP1     PSX +1
        F/\*F/(X)/
        y?
        PGO LP1
        PPR Loading heading, etc.
        E
        L/BASUG/Q1111
        PPR Save footnote text
        B
LP2     F()'FS((
        y?
        PGO LA1
        PGO EX1
LA1     S/BASUG/Q2222!'FE!+
        y?
        F(='FE)((
        y?
        PGO LP2
EX1     E
        L/BASUG/Q2222
        PPR Footnotes added
        E
        F/'FE/.FF/
        y?
        B
        F/Footnotes/
        ?
        PPR Number footnotes themselves
        PSX 0
LP3     PSX +1
        F('FE)()(X).  (
        y?
        PGO LP3
        PPR Quote macros
        B
        F('QL(.LI0).LM+6).RM-6(A
        F('QE(.LI1).LM-6).RM+6))(A
        B
```

Speedier Applesoft.

By Dr. Charles Sheppard.

These two techniques turn two of the slowest Applesoft proceedures into very fast ones. They appeared some years ago in a US magazine, and I have merely added a couple of modifications. Programs still appear in magazines which could be speeded up enormously by their use.

1). We still often see programs published which require extensive reading and writing of numeric arrays to text files by means of the very slow READ and WRITE method. Large arrays take many minutes, but there is a much faster way to do this. You have probably noticed how BLOADing and BSAVEing even large Bfiles takes a relatively much shorter time. If you have large numeric arrays to save and input this can be done very much faster by BSAVEing that block of memory where the array is stored. Then it can later be BLOADed into the right place into the same or different running program. The only things needed are the start point of where the array is stored in memory, and its length. Locations 131 and 132 store the address of the last used variable. If the array A(15,100) has been made in the program and you wish to save it, then

```
100 X = 0 * A(0,0) + PEEK (131) + 256 *
    PEEK (132)
110 PRINT D$ "BSAVE name,A" X ",L" 16 *
    101 * 5
```

The 16 and 101 are the number of dimensions in the array, in this case 15 and 100 (remember there is a zero row and column). The last 5 is used for real arrays; it should be changed to a 2 for integer arrays.

To Bload this array, the array should first be DIMensioned to the same dimensions as the array which was saved. Use line 100 as above, and then

```
110 PRINT D$ "BLOAD name,A" X
```

String arrays cannot be used in this way directly. I have, however, used it for storing alphanumerics by taking the letters and numbers as ASCII codes and regarding them as integer numbers. You just have to convert them back and forth in the program at the relevent point between the character and the ASCII code. It gets complicated when you mix alphanumerics and real numbers though! I have also found that you can increase the size of the array (or database) in this way. If you want to add 10 more records to your table (or database) then DIM A(15,110) and BLOAD in the array. However, only the column number can be increased (ie the second subscript). Things get scrambled if the first subscript is changed. I have not tried to increase the size of arrays other than 2 dimensions in this way but imagine the same principles apply. The method is very fast when you start to get data sets of several thousand values which you want to load in and process, and the data takes up less disk space too.

2) Programs also still appear which initialise arrays (or set their values to 0) in order to reuse them. This can take a long time when their dimensions are big and when FOR: NEXT loops are used. It can be done instantly by

```
100 POKE 109, PEEK (107): POKE 110, PEEK
    (108)
```

Then redimension the array. All its values are now 0 and it is reDIMed without an error message being generated. That line will delete all arrays and acts by "closing up" the pointers to them. If you want to delete some arrays but not all then a longer version is needed. First, you must make sure that the array to be deleted is DIMensioned after the ones to be kept. The lines are

```
100 X = 0 * B(0,0) + PEEK (131) + 256 *
    PEEK (132) - Y
110 POKE 110, X / 256: POKE 109, X-256 *
    PEEK (110)
```

The value of Y must be 5 + (2 * number of dimensions in array). eg 9 for a 2 dimension array. If the array is a string array, the B(0,0) in line 100 should be VAL (B$(0,0) instead. Arrays dimensioned before B(x,y) remain intact.

Ed.

I understand the magazine mentioned was Nibble. Our thanks to the Editor.

VACANCY

WANTED: - Person to repair and maintain Apple //e and peripherals in East London area. Ring [redacted] any time for further details.

ARCADE KEYBOARD INPUT ROUTINE

By Barry Brummit and Eric Rose

```
100  HGR: X = 20:Y = 20
110  POKE  - 16302,0
120  B$ = A$: REM SET B$ = LAST KEYPRESS
130  IF  PEEK ( - 16384) > 127 THEN
     GET A$
140  IF A$ < > "I" AND A$ < > "K" AND A$
     < > "L" AND A$ < > "J" AND A$ < >
     " " THEN A$ = B$
145  HCOLOR=0: HPLOT X,Y: REM ERASE POINT
150  IF A$ = "I" THEN Y = Y - 1
160  IF A$ = "K" THEN Y = Y + 1
170  IF A$ = "L" THEN X = X + 1
180  IF A$ = "J" THEN X = X - 1
190  IF A$ = " " THEN  GOSUB 1500
200  HCOLOR= 3: HPLOT X,Y: REM PLOT THE
     POINT
210  IF X>270 THEN HCOLOR=0: HPLOT X,Y:
      X=1
220  IF X<1 THEN HCOLOR=0: HPLOT X,Y:
      X=270
230  IF Y>190 THEN HCOLOR=0: HPLOT X,Y:
     Y=1
240  IF Y<1 THEN HCOLOR=0: HPLOT X,Y:
     Y=190
250  GOTO 120
1500 HCOLOR=3: HPLOT X,Y TO X,0:
     HCOLOR=0: HPLOT X,Y-1 TO X,0:
     HCOLOR=3: POKE -16384,0: A$ = B$:
     REM FIRE AND SET FORGET LAST KEY
1510 RETURN
```

Notes on Keyboard Input Routine.

1. The if-then statement in line 130 checks to see if a key has been pressed. If it has the program assigns it to A$. If a key is not pressed the program continues to execute the last command.

2. The if-then statement in 140 checks to see if the key pressed is valid. If it isn't the computer sets A$ equal to the last key pressed.

3. Lines 210-240 check to see if the point has moved off the limits of the screen. If it has it repositions it on the other edge.

4. The commands for the keyboard input routine are as follows:
 'I' moves up
 'K' moves down
 'J' moves left
 'L' moves right
 'SPACE' fires

5. Unlike the standard keyboard input routine which will fire continuously until you press another key, this one only fires once and then returns to what movement you were executing before.

6. When the program is run A$ and B$ are blank. When a key is pressed it is put into A$ and then checked. If it is valid, the key in A$ is copied into B$. If it is not valid, the value of B$ is copied into A$. By using this method one can insure that invalid keypresses will not cause the movement to stop, as it would in a normal keyboard-input routine.

7. Making A$ equal to B$ in the firing routine makes the computer forget that the space bar was pressed and thus the computer continues executing the last valid command.

8. NOTE: I chose to use I, J, K, L, and SPACE as my movement/firing commands. These can be changed quite easily by changing the if-then statements in lines 140-190

9. NOTE: Because of the arrangement of the keyboard buffer this program will not run if GPLE is in the memory.

Variables used in the keyboard-input routine:

-A$ holds the value of the most recent keypress.
-B$ holds the value of the last keypress.
-X holds the horizontal position of the point.
-Y holds the vertical position of the point.

This program is available for downloading from SANCTUARY TBBS. The number is 0784-38110 24h CCITT 300b.

PILOT ARTICLE

*Ed. **Howard Freeman** is a one time colleague of mine and is currently a lecturer at Stow College, Glasgow where he teaches technical aspects of biology.

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SOFTWARE REVIEWS

Title: **Statistics**
Description: Statistical Analysis Package
Consists of: 1 DOS 3.3 floppy disc
Author: Dr C Sheppard
Publisher: Dr C Sheppard
Price: £25.00. inc
Hardware needed: Apple][, Apple][+, Apple //e, or Apple //c. At least one disc drive. Printer (optional).

By Andy Jackson

Review Machine: 64k Apple][+.

Introduction:

Statistics is a statistical analysis package for the Apple][series of computers written in Applesoft BASIC. It allows the use of many of the more common statistical techniques such as T test, F test together with some less frequently used techniques (by some!) like cluster analysis.

Statistics is booted in the normal way: there is no copy protection. There are eight programs on the disc together with a manual (over 60k bytes!). I found that the best technique with this package was to print the manual, using the supplied program (READ MANUAL), and study this at my leisure and then use the package.

Manual:

The manual is excellent; this in itself is unusual for many pieces of software. It is split into several sections: introduction, file editing, statistical techniques available, use of foreign data files, and references. The manual not only describes each operation but also gives hints and tips on how to get full use out of the option. In the sections describing statistics a small example is generally given to clarify the particular technique used.

General Usage:

There are two versions of STATISTICS supplied on the disc; one is integer only, the other is real. The integer version allows approximately 2.5 times the number of data items and so is useful for large data arrays. The entire program is menu driven which is useful for the novice but a little frustrating when one knows exactly where one wants to go in the program. When selecting a menu option <RETURN> has to be typed after each entry: here it might be useful to go to single key depression using GET$ rather than INPUT only asking for confirmation if something drastic will occur. After selecting an option the current procedure is printed at the top of the screen which is a useful reminder. I felt that it would be helpful to have the name of the current file printed here also.

Before carrying out any statistical analysis the data has to edited into a new file. The File Editor option is seleted from the main menu. The number of rows and columns of data then have to be entered; in fact one has always to write down what this size is since, when reloading the data for analysis, this information has to be given again. This is a result of the fast loading technique used on the data. However, I felt that this could be avoided if two files were created for each actual file required: one containing the data and the other the header data and some descriptive field. All the data making up the file is entered at once, with no value being entered by just RETURN. No values are useful for data sets with missing data or where the data will be filled in at a later time.

Other operations possible from the file editor menu include display of data (screen or printer), addition of rows and columns to an old data file, deletion of a row or column, search for a specific value, transform a variable (according to some mathematical function), and change value. The change value is perhaps the most important of these since mistakes are made on typing in data and here I found the program a little difficult since one could not work down a list of values, entering the row and column of each item of the data, then say yes to change it. I felt that some sort of auto



increment method and a single key (i.e. no <RETURN> required) for changing the value would be useful here. Leaving the file editor automatically saves the file - a useful feature.

Statistics:

After returning to the file editor the statistics section of the statistical analysis part of the program may be applied to the data just created or to a previously saved data file. The options available are summary statistics, difference of means, m analysis of variance, t test, chi squared test, correlation and regression, ranked correlation, Mann-Whitney U test, and cluster analysis. One of these is entered by typing the number next to the appropriate option. It would be possible to add extra procedures to this menu since the program 'sizes' memory and so extra lines of BASIC would not cause it to fall in a heap!

With each option it is possible to direct output to the printer so that a permanent record of ones analysis is available. Also, having selected a particular data file to work with it is possible to use the file for every option without having to retype the relevant details. Unfortunately for each file analysed one has to remember the number of rows and columns associated with it; I think that if one used the program heavily the scraps of paper with these details on might easily get lost - also if one returned to a data file after a few months and the size was forgotten the data would be hard to recover.

The different statistical options available within the program cater for a wide range of users; for me the regression and correlation of the data was the most useful giving not only the intercept but also the variance of the actual data with the fitted data. Another useful option was the summary statistics which gave mean, standard deviation, skew, and kurtosis of the data. Cluster analysis is the most complex of the statistical procedures available. An example of its use is in the analysis of metals content of rain at different sites; where it is useful to know if there is relationship between different sites. Here rows of the data file would represent different sites and columns the readings for each metal. The manual is useful here in pointing out the best method of tackling this analysis and also that the analysis can take a very long time.

Other programs:

The statistics program uses a peculiar file format - a binary image of memory is saved rather than the long winded Apple DOS text file format. This format has advantages and disadvantages: files are smaller and load faster but they are unreadable by other programs. Sensibly Dr Sheppard has provided conversion programs to convert both to and from this binary format. This offers a number of advantages; if the Apple is being used as a data logger it is possible for the data to be 'untouched by human hands' - a small conversion program can turn the data into a file suitable for 'statistics'. Working the other has obvious benefits too.

A final conversion program converts real data files to integer data files. Unfortunately there is no utility to work the other way though if one is using integers it is probably because there is too much data to fit in the Apple][s memory!

Conclusions:

The program as a whole is very well presented and a considerable amount of thought has been applied to it in order to make it easy to use. There are a few areas where the program falls below its own high standard - for instance in the editing of data. The manual was excellent, not only for giving a description of a particular option (in its widest sense) but also in decribing its limitations and how different areas of the program could be adapted to suit personal needs with the minimum of trouble. The program was also very suitable for use as a teaching aid since data could be altered and its effect on results could be observed giving an insight into the way these statistical techniques work.



Titles: MegaWriter, MegaFinder, MegaSpell.
Producer: Megahaus Corporation.
Price: UK not known-see end for U.S.A.
Hardware required: Apple II+, //e and one or two disk drives.

By Dr. Peter Baron.

This is bit like attempting to fit a quart into a pint pot, but for months I have been trying to get together a summary review of Megawriter, Megaspell and Megafinder ! So here goes.

Megawriter is a wordprocessor adapted from parts of the USCD Pascal editor, coupled with a disk organiser and print formatter, so users of this language will feel at home with some of the familiar top of screen prompts.

From an initial master menu, the selection to W)rite, O)rganise or P)rint must be made. The W), or edit, mode allows most of the usual functions, with main commands like adjust, copy, delete, find, insert (which allows text to be typed to the screen), jump, replace and quit. There are also facilities for setting the writing environment (as distinct from that for printing), like line width, margins, page length and the like. An unusual command, called S)hield, is provided to protect text from alteration when text margins are changed.

80 column boards are recognised automatically, but when Megawriter was used with Sup R Term, the cursor vanished on the first key stroke ! The Videx board functioned perfectly, though in this case ctrl A must be used for switching between upper and lower case, rather than the shift key. Most commands are entered as single key strokes, which is nice, but unlike some other modern wordprocessors, this one does not perform any mathematical operations.

The O)rganise section of Megawriter allows renaming, initialising, copying and deleting, as well as the abilities to compact disk files, use wildcards, see the disk titles on line and print the catalog - to screen or hardcopy, which, besides file titles, shows the dates on which they were written. It also gives the remaining space on the disk.

With the P)rint option, which defaults to the Epson MX80, all the usual parameters, including page numbering and special printer facilities, can be set. It is also possible to use microjustification if your printer is able.

A Megatutor disk comes with Megawriter, so as to ease the learning process. Also available is Megaspell which is a simple to use spellchecker supplied on another disk. Points to note are that it allows correction in context- with a superb display, has a dictionary of 40,000 words which allows the addition of another 10000, and automatically rejects false alarms caused by format commands. Oh yes, it is agonizingly slow - over 5 minutes just to read in the text of this article and the dictionary words.

Finally, just a brief look at the last of these programs, Megafinder. Essentially this is a file management package of three disks, which, as far as I could tell, will, amazingly, not allow any simple mathematical functions to be performed on numerical entries or reports. Both 40 and 80 column displays are again supported and either ready made or user-designed entry forms may be used by employing the two disks supplied for these purposes. Interesting features are; that information can be transferred between forms, fields do not require names and extra fields can be entered. Of course, searches and alphanumeric sorts can be performed (and the blurb claims that Megafinder is much faster on search than PFS) and a variety of attractive report formats created. Megafinder can be used with Megawriter in order to merge mail lists. Editing functions are quite adequate, other than that pesky ctrl A.

The only way to exit these programs seems to be through switching off the Apple and I do not think that users will find this method either convenient or desirable.

It always seems to me that no one piece of software ever has all the features that one needs and it is all too easy to pick

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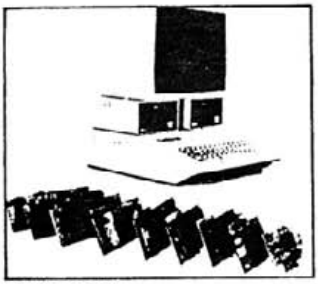
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Routine Machine	£39
Microsoft Compiler	£119
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on the bad points. The programs mentioned here all have quite a lot going for them and, no doubt, anybody contemplating a purchase will wish to make a thorough survey of the available software before spending money. In each case, the manuals are good, though they are written in a tutorial style, with a reference card bound in.

I am not aware of the UK prices for these items, but they are advertised in the June '85 issue of InCider at: Megawriter, $65.00 ; Megaspell, $39.00 ; Megafinder, $99.00.

Notes on CopyII Mac

By Peter Trinder

Central Point Software seems to release yet another version of CopyII Mac just as we are getting used to the one we've got. The good news is that they are keeping ahead of the best copy-protection schemes, so that you can back-up that valuable software. The latest version, 3.2, will back-up Jazz. (Use bit copy only on the Program disk; and sector copy the Start-up and Tutorial) However these well thought out upgrades to the copy program may well leave behind versions that worked better with some software. For example, you can apparently use version 3.0 to back-up Home Accountant (bit copying tracks 0 and 1), but version 3.2 runs into trouble. Probably the long winded bit copy scheme on version 2.2 may have special use with some programs. Therefore we suggest that you keep the older versions of the program.

Make up a disk with several versions on it. Start with a fresh, initialised disk, and add the new Finder 4.1, and System 2.0 (the one that comes with Apple Upgrade) Trash, if you don't need them, all the desk accessories except Control Panel, then add Transfer2, Skipfinder 4.3, and maybe Hex Calculator. Then remove all but the locked in system fonts.

Now add to the disk CopyII Mac, versions 3.2, 3.0, and 2.2. Also add, if you have them MacZAP 3.0, FEDIT (3.0) and MacTools3.2. It is also useful to install the Mainstay MacBooster program which is a disk caching system. This program has just arrived and on a 512k Mac is in some ways more useful than the Ram Disk. Just try running Microsoft Word using MacBooster.

This collection will put all your backup power in one neat place and keeps all the related tools together.

BOOK ROUNDUP

Contributions from Dave Miller, Peter Baron, Peter Trinder.

Title: Apple Pascal: A Programming Guide
Format: 247 pages paperback
Author: Allen B. Tucker, Junior
Publisher: Holt/Rinehart/Winston (CBS College Publishing) 1982
Price: £17.95
ISBN: 0-03-059547-9

This is one of the best Pascal books I have seen for some time. It manages to cover quite a large range of topics without ever getting out of its depth.

These range from simple input, output and arithmetic to binary searches, Gaussian Elimiation and word and sentence counting.

The author limits the book, covering a subset of Pascal called Eight Statement Pascal, or ESP for short. ESP consists of the four basic variable types (INTEGER, REAL, CHAR and BOOLEAN), the use of programs, procedures and functions, the use of IF, WHILE, FOR and REPEAT, arrays and simple input and output.

Even though the level of Pascal is restricted to ESP, the nine chapters of the book can get quite involved. This is especially true of the later chapters.

Eight of the nine chapters have numerous 'LAB' exercises which test the student on the topics discussed in the text. Answers are included in the appendices.

Worthy of note, chapter three is completely devoted to a discussion on

Structured Program Development. It is good that this is stressed not only in this chapter but throughout the book.

The appendices include lists of the Filer and Editor commands with explanatory notes, Apple Pascal error messages and the Apple Pascal character set and what keys to press to get the restricted characters such as '['.

This book is, though, priced relatively high at £17.95 but, if you can afford it, I feel that it is value for money.

I would recommend this volume to anyone who wants to learn Pascal as a second language, although it is also suitable for a complete beginner as long as he is willing to work at his studies.

Title: Apple Machine Language,241p, pbk.
Author: Robert D. Rosen
Publisher: Holt/Rinehart/Winston (CBS College Publishing) 1983
Price: £19.50
ISBN: 0-03-063336-2

Title: Best of PCW: Teach Yourself Assembler 6502, 220p, pbk.
Author: Paul Andreas Overaa
Publisher: Century Communications Ltd 1895
Price: £7.95
ISBN: 0-7126-0550-9

Teaching machine language programming is fraught with pitfalls for the unwary. It is all too easy to get totally confused.

Thus authors who aim to teach machine code should take extra care to ensure that their books progress at an easy pace, not introducing too much at any one time. They should also take every opportunity to stress structured program techniques.

This need is made doubly important when it is considered that in machine code there are no restrictions at all applied to the programmer. It only takes one byte in a machine code program to be wrong to change its operation completely.

With this in mind these two books, whose objective is teaching 6502 assembly language, were reviewed: 'APPLE MACHINE LANGUAGE' by Robert Rosen and 'TEACH YOURSELF ASSEMBLER' by Paul Overaa.

Both assume a knowledge of BASIC and use BASIC code fragments to illustrate corresponding assembly code fragments.

'APPLE MACHINE LANGUAGE' is written specifically for the Apple][range of computers. It consists of eight chapters and six appendices.

Most of the programming is done in hexadecimal as opposed to assembly code. In fact, the mini-assembler is only introduced in chapter five and is not used extensively after that.

I don't know about anyone else but:

```
CLC
LDA $300
ADC $301
STA $302
RTS
```

means a lot more than:

```
18 AD 00 03 6D 01 03 8D 02 03 60.
```

Flow charts are extensively used to put across programming ideas as well as pieces of BASIC programs.

'TEACH YOURSELF ASSEMBLER 6502' is published by Century Communications in association with Personal Computer World.

It is not machine specific but is meant to be used with all kinds of computers which have a 6502 as the CPU and which have a standard 6502 assembler (does such a thing exist?).

Warnier diagrams are used to put across program logic and the usefulness of these is stressed at every possible occasion.

The book consists of thirteen chapters and five appendices and the topics progress from simple building blocks to data structures, sorting and searching.

These two books make an interesting comparison. 'APPLE MACHINE LANGUAGE' seems to be of a hands-on approach whilst 'TEACH YOURSELF ASSEMBLER' is a much more formal book.

Which one works better is really a matter of personal taste but I think that the hands-on approach runs the risk of confining programming to the keyboard, as opposed to going away from the computer to collect your thoughts and to produce a well thought-out, structured program.

Taking the books' prices into account 'TEACH YOURSELF ASSEMBLER' is by far the better buy. It is almost one third the price of 'APPLE MACHINE LANGUAGE' while being very comprehensive.

I feel, though, that 'TEACH YOURSELF ASSEMBLER' is too formal for many peoples' tastes and that they will prefer the more casual approach adopted by 'APPLE MACHINE LANGUAGE'. Also 'APPLE MACHINE LANGUAGE' is Apple specific whereas 'TEACH YOURSELF ASSEMBLER' is not although I do not think that that is much of an advantage.

'APPLE MACHINE LANGUAGE', on the other hand, is over-priced and seems chaotic, especially in the beginning. I had the feeling that too much was being introduced too soon. I fail to see why Robert Rosen decided to program in hexadecimal: this only makes learning harder and the chance of making an irritating mistake greater.

I think that 'TEACH YOURSELF ASSEMBLER' is much the better book, but have always thought that learning in isolation, from a book, is never as good as learning in a group, from a tutor. 'TEACH YOURSELF ASSEMBLER' might be well suited as a companion to a machine code course: being not too expensive; but my advice is to save your money and enrol on a BASUG machine code course!

Title: Best of PCW: Assembler Routines For The 6502, 120p, pbk.
Author: David Barrow
Publisher: Century Communications Ltd 1895
Price: £7.95
ISBN: 0-7126-0507-X

This book, like 'TEACH YOURSELF ASSEMBLER' is published in association with Personal Computer World. A total of 106 6502 routines from PCW's Sub Set series are included, along with a detailed discussion of the documentation system used for each 'Datasheet'. This documentation system is, as far as I know, the only documentation standard for assembly language programs.

There also is a detailed discussion on the undocumented opcodes available on some 6502s (but not the 6502C and 65C02). The Datasheets range from simple (!) delay routines to 16- and 32-bit arithmetic routines, register handling and routines which convert denary into binary, binary into ASCII and binary into Gray Codes.

There are even routines which extract roots and produce 32- bit random numbers. Every 6502 programmer should have this book because it provides so many useful items and should reduce the re-inventing the wheel syndrome on which most assembly programmers tend to spend so much of their time.

The Hacker's Handbook. By Hugo Cornwall. 149p. pbk.
Century Communications, 1985. £4.95.
ISBN 07126 0650 5

This is not so much a book for those who hack as those who have aspirations in that direction. After a short part on computer to computer communications, which mentions essentials such as baud rates, synchronous and asynchronous protocols, the reader is told what sort of information he might find on mainframes, in both the public domain and institutions. A section on 'Hackers Intelligence' deals with the problem of gaining important telephone numbers, with some reprinted data gained from various bulletin boards. Cornwall also reveals techniques for dealing with software and hardware on the target computer, as well as further intelligence on operating systems and security techniques.

Part of the book is devoted to network and viewdata systems, with final sections on radio computer data and the future of hacking, as well as a set of appendices containing mainly technical information.

All in all good value for money and more for fun than anything else.

Beneath Apple ProDOS. By D. Worth and P. Lechner. about 200pp, pbk. Quality Software, 1984.
$19.95.
ISBN 0 912985 05 4

No doubt many readers will remember the tremendous insight given by the predecessor to this volume - Beneath Apple DOS. Well this one is written along similar lines, with the same sort of format. It contains information about the development of DOS to ProDOS, with chapters on disk hardware, formatting, volumes, directories and file types. Then it gets down to the nitty gritty of ProDOS; its structure, use from assembly language, customizing and global pages. There are also a series of example programs whose functions mainly resemble

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those in Beneath Apple DOS - Dump, Format, Zap, Map, but with a find index block utility, a type command and a dumb terminal facility. In addition, the authors have provided a discussion of disk protection schemes and nibblizing with information on the logic state sequencer and the conversion of DOS to ProDOS.

It is important to note that there is a Supplement, for ProDOS versions 1.0.1 and 1.0.2, which documents the structure and logic of the system at virtually a byte by byte level.

If you needed Beneath Apple DOS, you'll need this too. If you haven't read that title, but are seriously into programming or the technicalities of modern Apple computing, get Beneath Apple ProDOS.

Macintosh Revealed. By Stephen Chernicoff. Volume One.-Unlocking the Toolbox. Hayden Book Company
£27.45
ISBN 0-8104-6551-5

Way back in 1984 in the Second or third edition of MacWorld I saw an advertisment for a series of books on the Macintosh by Hayden Book Company. Some of these titles are, I think stillborn, but not Macintosh Revealed. This book will appeal to those of us who are keen programmers but have yet to branch out from Basic and Apple][Pascal. If you buy Inside Mac, which is an essential publication for any serious programming, you will find that all is there but there is very little of the dialog and helping hand. No one says why you do this. Chernicoff does fill this gap and does it very clearly. Steve worked at Xerox Parc and then at Apple where amongst other duties he wrote much of the Inside Mac documentation. Mac Revealed is divided into two volumes but I only have Vol 1 to hand for review (the other one will be here soon). Volume one is some 516 pages and presents the foundations of the Mac Toolbox. "Putting the Tools to Work" introduces the basic conventions for calling the Toolbox from an application program and discusses several general-purpose Toolbox facilities useful in your programs. Thanks for the Memory tells how the Mac memory is laid out and how to allocate memory space for your programs needs. Any Port in a Storm presents the fundamental concepts behind the quickdraw graphics routines, and Quick on the Draw shows you how to use quickdraw. Summoning your resources introduces one of the cornerstones of Mac programming. Getting Loaded covers the way programs are started and how code is loaded into memory for execution.

Understanding Characters tell how character text is represented inside the computer and displayed on the screen.

Once you have mastered these fundamentals you will be ready for Volume Two "Programming with the Toolbox" There you will be told about the parts of the Macintosh user interface and how they work. Events, windows, menus, cut and paste text editing, controls alert and dialog boxes and disk in/out are all in Volume Two. A central feature of the second book is a fully worked program, a simple text editor called MiniEdit. This serves two purposes. Firstly it gives a concrete base on use of the Toolbox and secondly give a framework for development of a full blown application.

This short review cannot do full justice to this book but I can fully recommend it. I had a live Mac Programmer visit me and he took one look and tried to buy my review copy! Apple have themselves endorsed this publication and Apple "believe that good books are important to successful computing. The Apple Press imprint is your assurance that this book has been published with the support and encouragement of Apple Computer Inc., and is the type of book that we would be proud to publish ourselves". I don' t think they have been let down here. It is expensive at £27.45 for part one and £32.95 for part two. It is not essential to buy them both at once.

Basic Microsoft Basic for the Macintosh. By S. Coan & L. Coan. 256p. pbk. Hayden Book Company, 1985. (price tba). ISBN 0-8104-6551-5

This is another in the Hayden's Macintosh Library series and is a well produced, clearly printed softback. This book covers the Version 2.0 of Microsofts Basic; the more recent version that does not need line numbers. Included are plenty of clear examples showing how each command is used. There are listings within the chapters and then there are also listings in an appendix giving the answers to problems set at the end of each chapter. All the special commands that this version of Basic provides are covered in a clear manner and although the text complements the manual, it could be equally used without.

CLUB BUSINESS

Minutes of the Annual General Meeting of BASUG Ltd. held in Room 97, County Hall, London SW1, on Saturday 6th July 1985

The meeting was opened by Quentin Reidford, Chairman of BASUG Ltd., at 11.15 am. Approximately sixty members were in attendance, including eight members of the outgoing committee.

1. Apologies for Absence.

Apologies for absence were received from Richard Beck, Roger Harris and Tony Game.

2. Minutes of the last AGM.

Tim O'Flynn proposed and Gordon Johnson seconded that the minutes of the previous Annual General Meeting held on Saturday 16th June 1984 be taken as read. This was carried unanimously.

3. Chairman's Report.

The Chairman began by stating that his report was not as light-hearted as he would have wished it to be. During the year 1984/85 BASUG had been through a number of changes, which started when he became Chairman in November 1984.

At the last AGM, the financial difficulties of the club had been made clear to all, and the financial picture had not changed in real terms since that date. When BASUG Ltd. was formed it inherited a considerable deficit from the original BASUG. That deficit had continued to grow in the two years since the formation of BASUG Ltd. The Chairman believed that the primary reason was an inherent problem of volunteer organisations, that of motivation driven by belief rather than financial reward. In deciding to provide certain services and facilities in order to fulfill members' wishes, the committee had made decisions which, with hindsight, now appeared unwise from a financial standpoint.

The committee had worked very hard this year to rectify previous mistakes. Long hours of work had been put in by many, especially Richard Boyd. With the membership's support, BASUG Ltd. would go on to the coming year stronger than it has ever been before.

BASUG was first and foremost a group of enthusiasts who, in the best spirit of a club, should be prepared to contribute. Hardcore needed many more articles, program listings, routines and anecdotes. The Chairman appealed to the membership to flood the editor's office with articles in order to improve the size and standard of Hardcore.

The Chairman then explained how the committee had cut administration costs drastically. The distribution of goods was no longer an administrative function but was undertaken by committee members.

The introduction of The Force had not only provided a major service to our members, and one applauded by Telecom, but had saved BASUG Ltd. from liquidation. Hundreds of hours of work had been done by Richard Boyd and Tony Game.

Peter Baron, editor of Hardcore, had taken over during a difficult period. Hardcore had undergone several changes, and it was hoped that by the end of the year it would be glossier, fatter and more informative than ever.

Sheila Hirst had come back to the fold as our administrator, imposing strict financial controls and an accounting system which, it was hoped, would reduce the auditor's fees.

The BASUG pages on Prestel had been revitalised by Philip Faber with encouragement from Ewen Wannop. The Chairman thanked Tony Game and Mike Jones, who ran the bulletin boards, for providing a service which had become the means of introduction to BASUG for many of our new members. Thanks were due to Martin Rogers who had started the original Hotline and kept the service going through thick and thin, and to Chris Williams who had taken over from him.

Graham Attwood had organised the review of the software library and a new catalogue had been made. It was hoped that the addition of Speedloader by Cornelis Bongers would revitalise the Special Release Software. Richard Beck had organised courses and also the BASUG Presence at Apple '85. Special thanks were given to Derek Church for his help with the stand. Tribute was also paid to the work of Frank Everett, whose

competence and organisational skills would be sorely missed.

The Chairman concluded by saying that the next year must be a year of consolidation for BASUG, and after thanking his colleagues, asked the membership to continue to support the efforts of the committee in the coming year.

4. Secretary's Report.

The Secretary began by describing The Force as the most important innovation of the year. Ten of the committee were already communicating with each other via The Force and it was hoped that the administrator would be on-line soon. Richard Boyd had worked extremely hard to get everything going smoothly and over one hundred BASUG members are communicating with each other on The Force.

Local groups appeared to be functioning and meeting regularly at St. Albans; Bracknell; County Hall, Westminster; Croydon; Harlow; Leicester; Birmingham; Manchester; Canterbury; Harrogate; Sheffield and Nottingham.

Three very successful courses had been run this year and more were planned for the future.

In previous years several national meetings had been held at various venues in the Midlands and South East. This policy had been reluctantly abandoned because these meetings were always run at a considerable financial loss.

BASUG had been given a poor position for our stand at the PCW show, but Apple '85 had been highly successful with approximately sixty new Apple II members and forty new Macintosh members joining during the period of the show.

The Secretary wished to inform the membership that the registered office of BASUG Ltd. had been changed from Simmonds, Church, Smiles & Co of Bedford Row, London, to Buzzacott & Co, of Harpenden.

The following changes in the Directors had been notified to Companies House during the year:- 17/10/84 Robert T. Raikes resigned as Chairman; 20/11/84 Quentin Reidford was elected Chairman; 22/1/85 Roger Gear-Evans resigned as Treasurer; 22/1/85 James W. Panks was elected Treasurer; 5/2/85 Robert T Raikes, Roger Gear-Evans, John Rogers and Frances Teo resigned as Directors and committee members.

Thanks were due to Bob Raikes who had been Chairman for approximately sixteen months when he resigned.

The degree of commitment to BASUG shown by members of the committee had been very great, with one exception. A typical number of hours worked, for instance by the Membership Secretary, was around eight hours each week. The Secretary concluded by asking that anyone who volunteered to help or stand for committee should be willing to put in a considerable amount of work and above all, be reliable in performing their duties.

5. Treasurer's Report.

For the last six months, the Treasurer, who was not an accountant, had tried to make the best of the situation which resulted from the unexpected resignation of the previous Treasurer. The committee had striven to put the club in a better financial situation. They had studied the accounts, and in accordance with suggestions from the auditors, had introduced major changes in the financial reporting and accounting.

The following measures had been implemented:- The cutting of administration costs; a system of accounting approved by the auditors; a reduction in the amount of slow moving stock; proper costing of existing services and functions; studies into the costing of any new services or goods. The full effect of these measures would be slow to show in the accounts.

The sale of disks at a substantial saving to members would also help to make the club financially stable.

The Treasurer thanked Sheila Hirst for her competence during the last six months, under very difficult conditions.

The Treasurer thought that there was a very good chance of BASUG holding its own in future if support was forthcoming from the membership. He therefore recommended that the AGM accept the current audited figures as a true record of the period in question.

6. Adoption of the Accounts.

After a brief discussion, Nick Harvey proposed, Geoff Drake seconded, that the accounts be adopted. The proposal was carried with one abstention.

There was a short discussion about 'goodwill' written off, then Seth Proctor asked whether the AGM could not be held nearer to the financial year-end. Richard Boyd explained that the accounts had not been available until comparatively close to the AGM.

Stan Harding then thanked the committee and said that the committee should be paid for their time and effort. In reply, Norah Arnold stated that the committee, rather than wishing to be paid, had in fact cut their expenses to a minimum. Stan Harding then proposed an increase in the membership fee of £5. The Chairman asked him to refer the proposal to A.O.B.

*The outgoing committee resigned at this point.

Roger Harris and Richard Beck were not standing for re-election.

7. Election of Officers.

Norah Arnold was asked to read out the nominations received. They were as follows:-

Chairman - Jim Panks.
Secretary - Norah Arnold.
Treasurer - Irene Flaxman.

Committee - Keith Chamberlain, Peter Trinder, Richard Boyd, Ewen Wannop, Graham Attwood, Tony Game, Bill Watson, Tom Wright.

Tim O'Flynn proposed the acceptance of all the nominations for the officers and committee. John Rogers seconded and the proposal was carried unanimously.

8. Any Other Business.

a. Thanks.

Richard Boyd thanked the retiring Chairman on behalf of all members.

b. Membership Fee

Stan Harding said that BASUG needs new members in order to exist and was cheap at the price, so he proposed that the membership fee be doubled. Peter Trinder described how Chris Williams and the Hotline were able to help many firms in desperate need. Mike Worth, while supporting Stan Harding in principle because the services provided were worth more than the fee to him personally, urged caution, and an amendment was put forward that the committee should have a look at the problem of membership. John Rogers asked what effect the last increase had upon membership and was told that it had reduced the membership considerably.

Members then made several suggestions concerning the use of vouchers, different categories of membership and a charge to firms for use of the Hotline.

Richard Boyd pointed out that if every member gave an extra £5 the deficit would be wiped out. Similarly, if every member purchased one box of disks from BASUG, the finances of the club would be improved dramatically. T. Blackman suggested that every member should be asked to buy a box of disks on joining. Seth Proctor said that, as a student, he would be unable to pay an increased fee.

Stan Harding then asked that those present should be asked whether or not they would support an increase. Ewen Wannop thought those present were the interested members and may not reflect the wishes of the membership as a whole.

Stan Harding's original proposal that the membership fee be doubled was put forward but failed to find a seconder. Stan Harding then proposed that the committee take a serious look at the question of the membership fee. P. Knight seconded the proposal, which was carried unanimously.

c. Macintosh

Y. Zaneboni did not wish BASUG to cater for Macintosh owners because the group had been set up for the Apple IIe, and the Macintosh was a closed machine. Norah Arnold replied that the group had been started long before the IIe existed and was formed to support all machines made by Apple. John Rogers, a founder member of BASUG, agreed with Norah Arnold, who then offered to read the relevant paragraph from the Memorandum

and Articles of Association of BASUG Ltd. (See footnote). Mr. Zaneboni pressed his point that the Macintosh was a closed machine, and Norah Arnold replied that it was people such as those present who would eventually open up the machine, to the benefit of everyone. Y. Zaneboni then proposed that BASUG should not be concerned with closed machines, in particular, Macintosh. No seconder was found for this proposal.

d. Hotline Charges.

After a short discussion, Mr. Hunter proposed that business users should be charged a small amount for technical advice and this was seconded by Stan Harding. The proposal was not carried.

e. Donation.

Quentin Reidford proposed that each member be asked to contribute £5 to BASUG funds. Nick Harvey seconded, but the motion failed to be carried. Abe Savant thought that money could be raised in other ways.

f. Yearly Membership.

Quentin Reidford proposed that all memberships should start from January 1st, probably from 1986 onwards. After some discussion Seth Proctor then proposed that at some time in the future, at the discretion of the committee, there should be a change to a yearly membership, common with the accounting year. Quentin Reidford then withdrew his proposal and seconded that of Seth Proctor. The proposal was carried with none against, and one abstention.

There being no further business, the meeting closed at 12.50 pm.

Secretary's Footnote to the minutes of the AGM.

Paragraph 3 of the Memorandum of Association states:-

The objects for which the Company is established are:-

(B) To provide a forum in the United Kingdom for Members of the Company to exchange knowledge and information concerning all aspects of Apple Computer Systems, and derivatives thereof.

AN APOLOGY FROM ADMIN

I am not sure whether many of you realise that the despatching of goods that members ask for are undertaken by individual committee members, i.e. the disks at the moment are being despatched by Jim Pank's wife Julie; the software library disks by the Software Librarian, Graham Attwood; new membership packs by the Membership Secretary, Keith Chamberlain; Macsig disks by Peter Trinder; etc. This has come about in an attempt to reduce administrative costs.

This being the case I am writing, in anticipation, to apologise for any delay you have experienced over the weeks of late July to mid August. This will be due to the fact that most people take holidays and this has necessitated us to cover each task as best we can. This is not easy, even when we are not on holiday!

I would like to draw everyone's attention to the telephone number for your Co-ordinator

0727 - 73990

Whilst I do not mind receiving calls on the other number, if I go out I do not have an answer machine on it.

A new SIG is being formed by the Rev W G Rees for members who require special help i.e. handicapped. Please if you can help the Rev Rees or have information which could be useful to him then contact him on

0639 894743

Thank you all for completing the survey we undertook in June. The result of the prize winner of the box of disks will be announced as soon as I have had the chance to process them all. Unfortunately this is taking a back seat to other jobs. Just a quick hello the person who reads Hardcore "for the gossip", I hope we maintain his interest and would like to swop notes with him/her.

You will all see from Page 3 who the new committee are for 1985. I hope we have a successful 1985 and I look forward to working with both the old and new members of BASUG Committee.

Sheila Hirst
Co-ordinator

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SOFTWARE LIBRARY REPORT

By Graham Attwood - Software Librarian

A NEW LIBRARY CATALOGUE is now available for the 5 1/4" disks. We have decided at present not to issue this in printed form to the members of the group because of the expense of printing what amounts to a moderate sized booklet, but instead to make it available in textfile format on disk. A program has been written by Keith Chamberlain so that this textfile can be viewed on the screen either one disk catalog at a time, or all catalogs in sequence, and in addition it can be sent to any 80 column printer so that you can print your own hard copy of the catalogue. Provision is also made for updating as new disks are added to the library.

There are three ways to get this information file, (a) as part of the new member's starter pack, (b) by sending £1.20 for a new disk (worth £1.00 alone) containing the textfiles, or (c) buy any disk from the library for £5.00, and we send you the file on the back if you say you want it when ordering.

23 NEW EAMON SCENARIOS have been added to the Library, numbers E21 to E41,and E60 to E62. Disk E42 is an alternative beginner's cave to the one on the master disk. Four utility disks are available - EU1 is a utility to create/modify characters, plus save-game facility etc., EU2 changes set-ups and allows rooms to be viewed, EU3 has an inventory of all the monsters, and EDD is a dungeon designer and contains a players manual. All EAMON disks are £5.00 from the library, and newcomers please note that you need master disk E1 to run any of the subsequent scenarios.

CP/M AT LAST, or at least we should have by the time you are reading this. We have been negotiating with Rod Smith of the CP/M Users Group (UK) for a selection of volumes from their extensive library of CP/M and MSDOS programs. He has collected together 23 disks of items he thinks may be suitable - including:
Wordstar & Dbase II utilities, compilers, disassembler games, maths, finance modem programs, file handling and lots more. These have been transferred from other CP/M formats (Kaypro, Osborne, Superbrain etc) to Apple 5 1/4", which may sound easy enough but according to Rod is a real problem because most multi-format machines do not support Apple's weird disk control system. He tells me some programs have to be converted from CP/M to MSDOS and then transferred to Apple disks on an *** PC with 'Apple-turnover' board. Unfortunately the story doesn't end there, having got an Apple format file there is no guarantee it will run OK as the Apple's screen handling is well that's non-standard too, so we will have some work to do before they are ready for release to the Library. These new disks will be numbered C001 to C023. A special disk C000 will be a catalogue for the other CP/M disks, with utility programs to view the contents on the screen, and is available now. Price will be £5.00 per disk as for the main library. Rod Smith will transfer any of the other 500 volumes in his library to Apple format for members, and offers a service of translation between ANY two different formats. He can be contacted on 0342 313883.

And finally - A NEW PASCAL DISK P008 containing an adventure game called Stormbringer, and a batch of useful utilities. You need a little knowledge of the Pascal system to make use of these, but you get a disk copier, directory fixer, DOS/Pascal conversion, password/user protection etc. etc.

READER'S LETTERS

March
Cambridgeshire

Dear ED.
Disk Title: Apple Orchard

The following are the typescripts of the last letter I sent to Apple Orchard Magazine and their reply. I think they are self explanatory so I shall not say more about them except that the previous letters were not so aggressive and that it would appear that money and/or the threat of informing the credit card company play more of a role than good customer relations. I hope they will help anyone who may be in the same situation. (I have not yet received the surface mail magazines that have been sent (17/4/85) - I wait in hope?)

Yours faithfully
Phil King

Ed. The letter from Apple Orchard indicates that:
Phil should have had the April/May, June and August/September issues, which have now been sent. They also had computer troubles which resulted in some difficulties with the subscription list. There have been legal problems with the IAC which have made it necessary to suspend publication of Apple Orchard, though these matters should be settled soon. Apple Orchard are concerned never the less to give equivalent value for subscriptions paid and are trying to work out a solution satisfactory to the subscribers.

Cincinnati Country Day School,
[illegible]
Cincinnati,
Ohio [illegible], USA.

Dear Sir,

The Computer Department of Cincinnati Country Day School is very interested in contacting computer users' groups to exchange useful information regarding the use of Macintoshes. Our school has a long history of academic computing beginning in the early 1970s. The school's work with our Apple and Macintosh computers has initiated a unique working relationship with Apple Inc. We have tested and evaluated some of their most recent software (Mac Pascal and Macintosh Basic.)

We would like to be placed on your mailing list, and to receive a copy of your newsletter or publication.

Thank you so much for your help. We look forward to hearing about your activities.

Very truly yours,

Joseph F.Hofmeister.
Computer coordinator

Ed. I have received a letter from Y. Zaneboni, saying that he has written a m/c routine for the $INSTR command, which R.C. Lowe enquired about in the issue before last. The program is for sale and anybody interested can write to Mr. Zaneboni c/o Hardcore.

Billingshurst,
West Sussex.

Dear Editor,

Science Reference Library

The above library is located in the Patent Office building off Chancery Lane in Central London. (It is often referred to by its old title as the Patent Office Library). On the shelves there are two Apple oriented journals, apart from Hardcore, CALL APPLE (box PM76E(57)) and APPLE USER (box PM76E(35)) together with a number of other micro journals. These journals are considered ephemeral and are only retained for four years.

For BASUG members who live or work in London this free access library may be a cheap alternative to subscribing to the journals. The text book shelves contain a large number of Apple dedicated books mostly of US origin.

Opening hours are Monday to Friday 0930 to 2100 and Saturdays 1000 to 1300.

(The microfiche index is helpful. Looking for APPLE gives 'Apple & Pear Development Council': 'Apple & Pear Grower': 'Apple Assembly Language': 'Apple Basic': and then endless books by authors called Applebaum.)

Best wishes,

Guy Selby-Lowndes.

London

Dear Peter

I have just joined BASUG and am writing this to introduce myself and make contact with others with similar interests. We have 2 computers, an Apple //c which we use with Applewriter II for word processing and a new Macintosh. Currently my wife is writing her doctoral dissertation in moral education and philosophy on the //c. We chose the //c over the Mac because it was lower priced, held the promise of a LCD flat screen (portability was an important issue - we have taken it, with its monitor to Sweden), had a choice of word processors and seemed more suited for writing a large, academic work than MacWrite (in

retrospect, I am not sure I would have made the same decision). I have a number of projects for the Mac. One project is to integrate the Mac's graphics and windowing capabilities with UNIX's concept of software tools. As well I see possibilities of using the Mac to design computer-based training materials.

I have the following questions/interests:

1) How can one manually (i.e. without a hardware clock) time-stamp files under PRODOS?
2) Does anyone know of a file transfer program that can send files between an Apple //c and the Mac?
3) Is anyone interested in writing a file transfer protocol using the XMODEM and/or KERMIT protocol for the //c?
4) I have seen advertisements for 6 different C compilers for the Mac (4 are presently available in the UK). Does anyone have experience using a C compiler on the Mac?
5) Is anyone interested in the C language? I would be prepared to write a series of articles about C if there is any interest; this could include some information about the compilers available.
6) Is anyone aware of a computer-based training authoring system for the Mac?

Sincerely

Shmuel Browns

SMALL ADS

For Sale: 1 off integer card £15. 1 off 13/16 sector disk interface card £20. Also trying to get rid of headless Siletype - offers considered. Please phone [illegible] after 8 pm.

For Sale: Applemouse II. Boxed complete with all hardware, software and manuals. Little used. Only £85
Address as for ad below.

Wanted: Manual for Apple Serial Interface Card (not super serial card). Paul Tombling, Supply Squadron, Royal Air Force, [illegible]

Wanted: Apple //e in good condition. Package at reasonable price considered. Write 'Higgins' c/o Hardcore, or BSG050.

For Sale: Grappler + Printer interface. £60 O.N.O.
Phone [illegible]

For Sale: ITT 2020 48K
2 disk drives (DOS 3.2)
IDS 440 printer (w/graphics)
Hitachi 9" monitor
30 + 5.25" diskettes (inc. Visicalc)
Purpose built table
To sell complete for £500 or offer
Phone [illegible]

NEW DANISH GROUP

Danish Apple Users

By Chris Williams.

BASUG has recently been corresponding with the Danish Apple Users group (DAB) and it may be of interest to members to have some information about another national user group similar to our own.

DAB is a comparatively new user group with some 160 active members throughout Denmark. The membership is increasing steadily and although the number seems small it must be considered in relation to the Danish population of about 5 million. By comparison BASUG should have an active membership of almost 2000.

The annual membership fee is about £14 which entitles members to a free magazine called 'Apple Jam' which should be issued every 2 months but has been somewhat irregular to date. The only issue of the DAB magazine I have seen is smaller than Hardcore but quite well produced in an A5 photostat format with 20 pages and contains an editorial and news as well as informative articles on Visicalc, and Basic programming. Like Hardcore, it suffers from a paucity of articles, due to the members reticence.

DAB has a number of disks available to members from a club library at a cost of about £7 each. New disks are listed in the magazine, along with the disk number and a catalogue of contents. The programs on the disks are similar to those in the BASUG library. All ordering is handled through the Girobank and a Giro form is included in the magazine.

A recent innovation is the establishment of a 'Technical Library' of books, which are available for members to borrow on payment of about 75p+ postage, on condition that they post the book on to the next borrower when requested. DAB plan to allocate a small percentage of the membership fee to the purchasing of additiona volumes.

For future activities, DAB are hoping to establish a Bulletin board in Denmark for Apple users along the lines of our BABBS boards and this is one of the areas in which they are seeking information and help.

In order to assist members, DAB intend to set up a consultancy service similar to the BASUG Hotline, using about six experienced people, drawn from the membership, who would be available for telephone queries on only one evening a week from 7pm to 9pm. They could be approached at other times presumably by letter. Unlike the British tradition of 'voluntary' help to members DAB propose to pay consultants a small annual fee of about £300. In addition to their consultancy duties they will be expected to contribute regular articles to Apple Jam.

The club is run by Knud Pinholt and a small committee from Aarhus and at the moment are trying to establish a friendly link with BASUG with a view to possible exchanges of software and information to our mutual benefit. If any member would like more information or would like to contact DAB please let me know.

GROUPS - BRITISH

The Central London Group continues to meet in room 97 in County Hall, Westminster. As an example of what they do, I include below a few of the subjects being covered during the coming months:
August 1st - Demonstration of Superbase.
September 5th - Spreadsheet workshop.
October 3rd - Demonstration of Fisher Technik Robotic Unit.
November 7th - Apple networks.
For further information contact Abe Savant ([illegible])

Other local groups in the London area include:
Croydon (BASUG local group) - Graham Attwood ([illegible])
Croydon Microcomputer Club - Paul Chick ([illegible])
East London - Fred Linger ([illegible])
Richmond - Bob Forster ([illegible])

I don't have any other information about groups, so am going to take the chance to mention a specialised database for special needs, which might interest some of you.

Bardsoft contains information on a wide range of software for Special Needs, this includes mentally handicapped people of course. It covers 40 different micros, including Apple, BBC and Sinclair and at present concentrates on what is available in the U.K., though in the near future it will be extended to encompass relevant software available in any part of the world.

The database is housed in a 20 megabyte Torch hard disk system and uses a key word method to carry out searches for software on specific micros, goals, input switches and the like. Bardsoft charges a minimum of £1 per search and may be contacted at: Handicapped Persons Research Unit, Newcastle upon Tyne Polytechnic. ([illegible])

PRIZEWINNERS.

For Hardcore Volume 5(2), we have chosen Roger Harris for the best homegrown article. Congratualtions Roger, you should receive 1 box of disks in the near future. Tony Corinda won a fiver for the best letter and Andrew Jackson (not The President !) another fiver for the best tip.

For Hardcore Volume 5(3), Chester Kemp gets the box of magnetic twirlies for his review article of Appleworks. Ray Harris should receive £5 for his extensive listing - letter on the 'Instring', which was written in a true club spirit, in response to R. C. Lowe's request in the previous issue. The second £5 goes to Gil Filbey for his piece on Forth. Gil has long been associated with the UK Forth Interest Group and we can expect to hear from him again.

DIARY

August

1st	Central London Group. 6pm.
6th	Herts Group. 8pm.
7th	Essex Group. 8pm.
9th	Birmingham Group. 8pm.
12th	Hants & Berks Group. 7.30pm.
19th	Croydon Group. 7pm.
21st	Essex Group. 8pm.
	Harrogate Group. 7.30pm.

September

3rd	Herts Group. 8pm.
4th	Essex Group. 8pm.
5th	Central London Group. 6pm.
9th	Hants & Berks Group. 7.30pm.
13th	Birmingham Group. 8pm.
16th	Croydon Group. 7pm.
18th	Essex Group. 8pm.
	Harrogate Group. 7.30pm.

October

1st	Herts Group. 8pm.
2nd	Essex Group. 8pm.
3rd	Central London Group. 6pm.
11th	Birmingham Group. 8pm.
14th	Hants & Berks Group. 7.30pm.
16th	Essex Group. 8pm.
	Harrogate Group. 7.30pm.
21st	Croydon Group. 7pm.

A Mid-Essex Group is active.
Phone. Pat Bermingham-Chelmsford 261636

Advertising

Full page	£50.00
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1/4 page	£17.50
Flysheets	£75.00

Single colour whole page advertisements - by negotiation with the Editor (+ £20 - £35 per page). Preparation of artwork from £5.00. These prices are now ex VAT.

Copy Dates

Date	Edition
August 31st	October
November 1st	December
January 3rd	February

Please send complete camera-ready artwork in monochrome. If the original is in A4, then the typeface must stand photographic reduction to A5. We can undertake minor alterations to copy.

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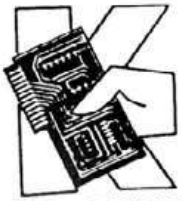
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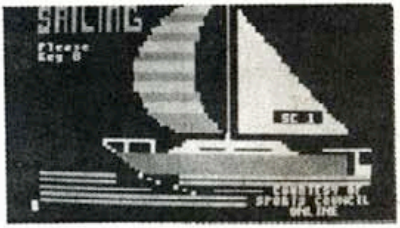
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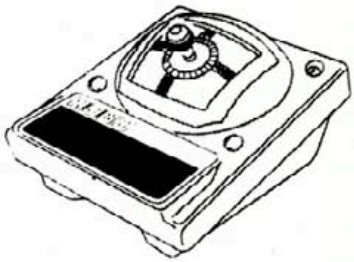
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